Exhibit 10

Ford

NHTSA & Ford Motor Company

DOT Building, Washington, DC

December 20, 2007

3:00 – 5:00 p.m.

Meeting Agenda

- Introductions
- Vehicle-to-Vehicle Front Compatibility
- Rear Seat LATCH
- Critical timing for Vin Number Final Rule.

Vehicle-to-Vehicle Front Compatibility

Agenda:

- Objectives of compatibility
- Ford's Strategy for Compatibility
- Ford's Compatibility Actions and Innovations
- Real World Benefits Associated with Ford's Actions
- Current voluntary agreement and real world status
- Research and Development of Compatibility Test Procedures and Metrics
- Conclusions and discussions

Objective

- To further enhance partner protection in vehicle-to-vehicle crashes without compromising self-protection

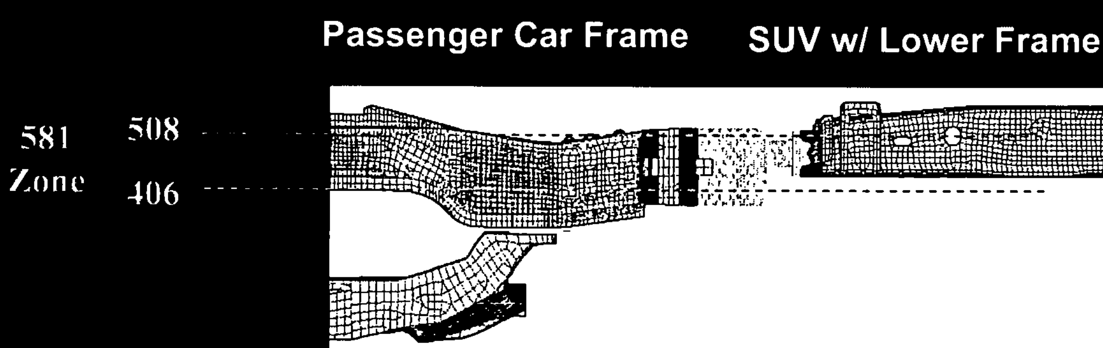
Ford Strategy

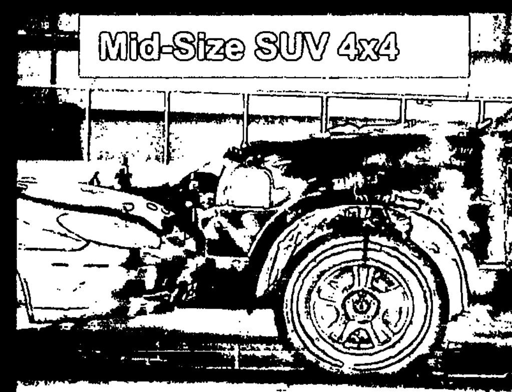
- Further enhance front-to-front compatibility by geometrical matching of frontal structures as a first step. Started in 1997 with the Expedition/Navigator
- Further enhance front-to-side compatibility by improving self protection in cars by providing combined head and chest protection side airbags- Public announcement of intent in 1995 and Industry first application ca. 1997 in Mercury Cougar.

Front-to-Front Compatibility Actions and Innovations

Geometric Alignment of Crash Structures (First Step to Achieve Objective)

- Ford has been a leader in designing LTV's for enhanced V-to-V compatibility
- Ford's initial strategy was to achieve geometrical alignment between frontal structures (started as early as 1997 to lower front frame rails on light trucks)
  - Ford Expedition, 1997 Job1
  - Lincoln Navigator, 1998 Job1
  - Explorer, Design Evolution, 2001
  - F150, Design Evolution

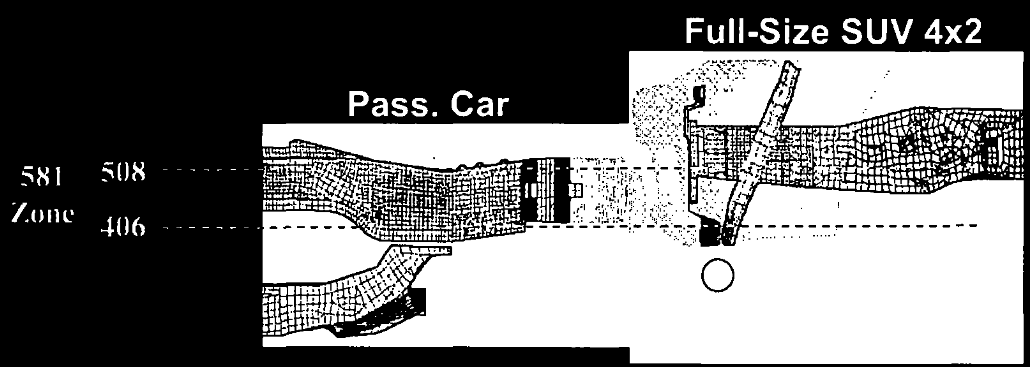


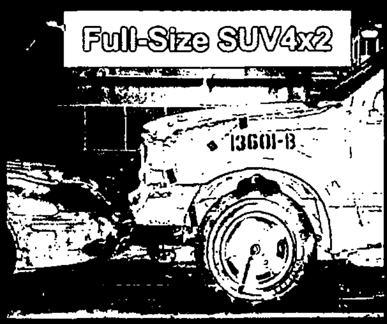


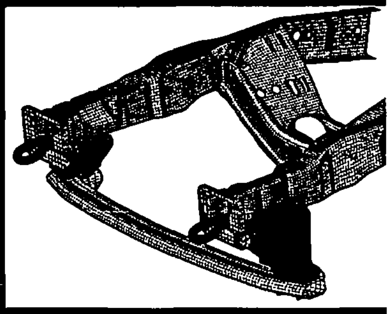
Front-to-Front Compatibility Actions and Innovations

Geometric Alignment of Crash Structures (First Step to Achieve Objective)

- Ford was also the first manufacture to introduce and implement an Industry-First BlockerBeam (BB)
- Ford started introducing various types of lower load path (SEAS)
  - BB on Ford Excursion, 1999 and on 2001 Super Duty Pick-up Truck
  - XC90 Lower Load Path, SEAS
  - Edge Lower Load Path, SEAS







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Our strategy has proven to be effective in the real world

- Our own FARS data analysis
- IIHS effectiveness analysis (not being discussed today)

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FARS Analysis

- Compared performance of 1999-2003 MY vehicles in FARS 1999-2003
- Front-to-Front impacts and Front-to-Side impacts
- Two vehicle planar collisions considered (i.e. excluded roll-overs) in which vehicles struck by Superduties had a fatality.
- Struck vehicles were cars and LTV's

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Current Front-to-Front Crash Compatibility benefits
Crash Mode: Front-to-Front with Fatal Partner Vehicles

Collision Partner	Crashes		Rate per 10k RVY		P-value Ha: p1>p2
	MY99-00	MY01-03	MY99-00	MY01-03	
F-250 *	95	38	0.55	0.43	0.11
F-350 *	35	12	0.64	0.38	0.06
Expedition / Navigator **	41	17	0.20	0.18	0.42

* Vehicles equipped with BlockerBeams beginning in Model Year (MY) 2001
** Vehicles designed for geometric alignment and also a control group since no geometrical changes were made

Source: Two-vehicle front-to-front crashes in 1999-2003 FARS involving:
- one light passenger vehicle (LPV) with at least one unejected fatal occupant and "Motor Vehicle" coded as Most Harmful Event, and
- one Collision Partner vehicle (per VIN) as shown, for the identified model year of 1999-2000 or 2001-2003.

Frontal impact identified by Principal Impact (or Initial Impact, if Principal Impact unknown) coded as 11, 12, or 1.

Rates calculated from R. L. Polk National Vehicle Population Profile, registered vehicle years (RVY) for Collision Partner.
Note: It is not clear, to the extent the data demonstrates statistical significance, that the difference in vehicle crash performance is attributable to any one factor or technology.

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Current Front-to-Side Crash Compatibility benefits
Crash Mode: Front-to-NearSide with Fatal NearSide Vehicles

Collision Partner	Crashes		Rate per 10k RVY		P-value Ha: p1>p2
	MY99-00	MY01-03	MY99-00	MY01-03	
F-250 *	98	34	0.56	0.39	0.03
Expedition / Navigator **	30	13	0.14	0.14	0.48

* Vehicles equipped with BlockerBeams beginning in Model Year (MY) 2001
** Vehicles designed for geometric alignment

Source: Two-vehicle front-to-side crashes in 1999-2003 FARS involving:
- one light passenger vehicle (LPV) with at least one unejected fatal occupant and "Motor Vehicle" coded as Most Harmful Event, and
- one Collision Partner vehicle (per VIN) as shown, for the identified model year of 1999-2000 or 2001-2003.

NearSide impact for LPV identified by Principal Impact (or Initial Impact, if Principal Impact unknown) coded as
- 8, 9, or 10 for fatal occupants in Seat Positions 11 or 21, or
- 2, 3, or 4 for fatal occupants in Seat Positions 13 or 23.

Frontal impact for Collision Partner identified by Principal Impact (or Initial Impact, if Principal Impact unknown) coded as 11, 12, or 1.
Rates calculated from R. L. Polk National Vehicle Population Profile, registered vehicle years (RVY) for Collision Partner.
Note: It is not clear, to the extent the data demonstrates statistical significance, that the difference in vehicle crash performance is attributable to any one factor or technology.

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Expedition/Navigator Compared to an Equivalent SUV1 with a Curb Weight That is About 500 lb Less

FARS '99-'03

Fatal Target Vehicle rates* (front-to-front)

- '99 to '03 SUV1 = 0.18
- '99 to '03 Expedition/Navigator = 0.19

Fatal Target Vehicle rates* (front-to-side)

- '99 to '03 SUV1 = 0.40
- '00 to '03 Expedition/Navigator = 0.14

* Rates per 10,000 Registered Vehicle Years

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Current Voluntary Agreement and Real World Status

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Compatibility Voluntary Agreement December 2003

Under Ford's Leadership, the Alliance Promulgated this Agreement.

Summary Overview of Front-to-Front Requirements

Phase 1 – Enhancing Geometric Alignment of Front PEAS

- *Completed in December 2003 and accepted by the member companies as voluntary commitment.*
- *September 1, 2009--100% of each manufacturer's LTVs (<10,000 lbs GVWR) meet Option 1 or Option 2.*

Option 1: The LTV Primary Energy Absorbing Structure (PEAS: e.g., Frame Rails) Must Overlap at Least 50% of FR Part 581 Bumper Zone AND at Least 50% of the LTV PEAS Must Overlap the 581 Zone. (LTVs with PEAS > 8", the Entire PEAS Must Overlap the Zone)

Option 2: If Option 1 is not Met, Secondary Energy Absorbing Structures (SEAS) with Lower Edge No Higher than the Bottom of the FR Part 581 Bumper Zone. (objective criteria developed in Phase 2)

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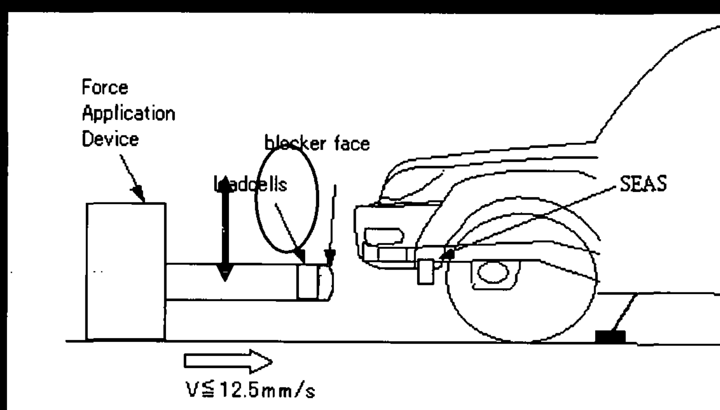
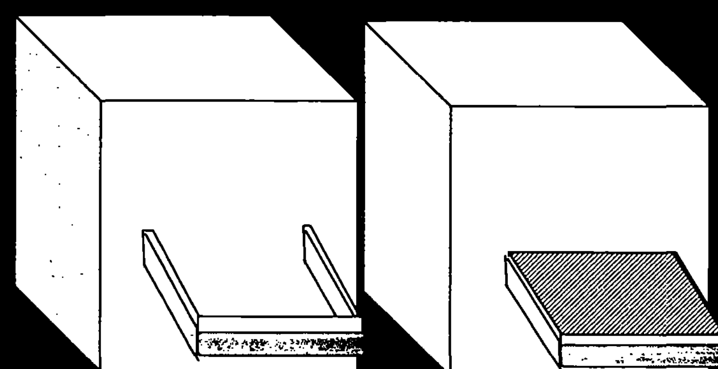
Compatibility Voluntary Agreement December 2003

Phase 2: Low Speed Barrier Setup for Dynamic Evaluation of SEAS

- The Force Application Device (FAD) consists of a rectangular Blocker face made of rigid steel [100mm x 25mm].
- The top edge of the FAD is at or below [460 mm].
- The width of the FAD must be at least the horizontal (y-direction) dimension of the SEAS.
- Each edge of the contact surface has a radius of curvature of [5 mm] +/- [1 mm].



Force application device



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Further Research and Test Procedures Development

- Can Various Alternatives of Geometrical Alignment be Detected by a Dynamic Test?

- Can a Compatibility Metric be Identified From This Test Procedures?
  - Numbers of tests were conducted using Full Width Deformable Barrier (FWDB), Fixed Wall Rigid Barrier (FWRB), and Vehicle-to-Vehicle (V-to-V) Crashes
  - Among Metrics Investigated are: Average Height of Force (AHOF), Rows Force-based Metrics Derived from FWDB, Rows Force-based Metrics Derived from FWRB, Work Stiffness Defined by NHTSA (KW400), etc.

- Conducted Two Series of Tests

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Test Series 1 (Full-Sized PU) – PEAS Height FWDB - Test Set-up

	Standard Full sized pickup	Raised full sized pickup
Vehicle Details	**Model Year 2006**	**Model Year 2006 Raised by 100mm**
Dummy type (Driver/Pass)	**H-III 50% / H-III 5%**	**H-III 50% / H-III 5%**
Test Mass	**2597 kg**	**2590 kg**
Ride Height (Left/Right)	**Front 877 / 878 mm Rear 905 / 912 mm**	**Front 976 / 979 mm Rear 1006 / 1014 mm**
Impact Velocity	**56.96 km/h**	**57.14 km/h**
Impact Accuracy	**~ 30 mm Left N/A Vertical**	**36 mm Left 0 mm Vertical**
LCW Height above Ground	**205 mm**	**205 mm**

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Compatibility Metrics Considered in Test Series

The principle of the metric is to ensure the vehicle has adequate structure in alignment with the part 581 Zone.

- Metric 1: Sum of peak cell loads at any time during crash (Vertical Negative Deviation, VNT) in rows 3 and 4 with proposed minimum load of 100 kN for each row

- Metric 2: Sum of peak cell loads during first 40 ms of crash (Vehicle Structure Interaction, VSI) in rows 3 and 4 with proposed minimum load of 100 kN for each row

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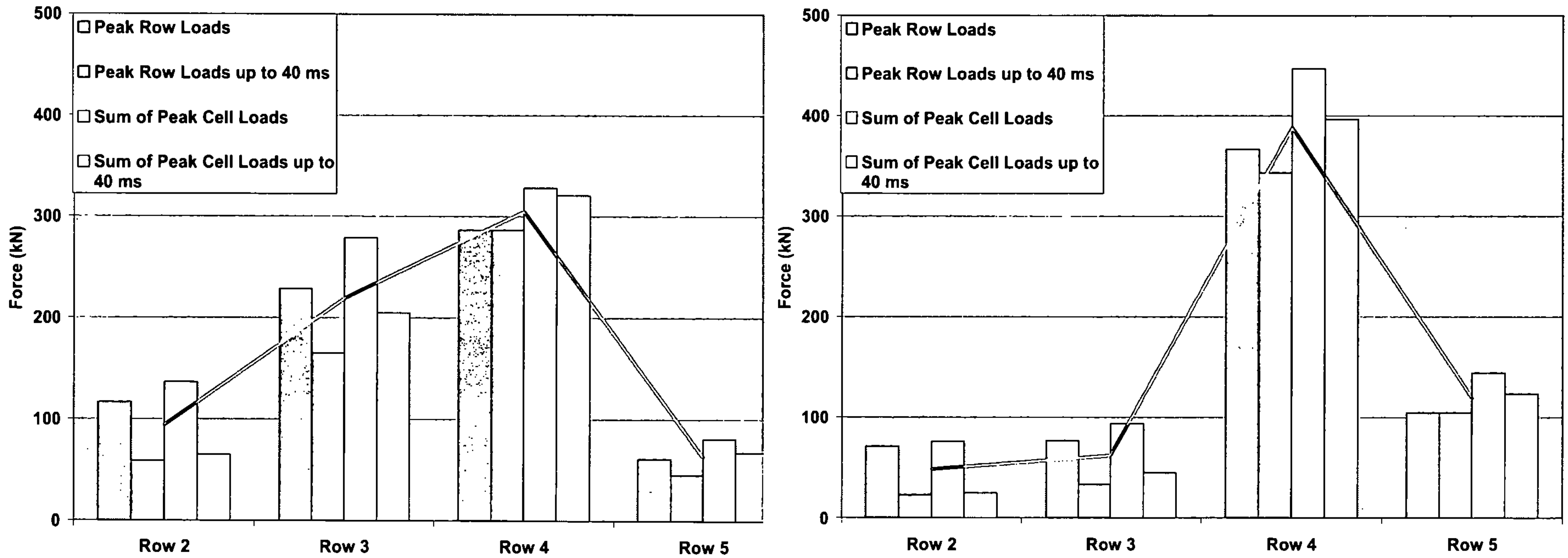
Peak Row Load Distribution of Standard and Raised PU

A shifting of load mainly from row 3 to row 4, of approx. 100 kN, occurs when the PU is raised



For the standard PU, the loads seen in rows 2-5 gradually increase and then decrease in approximately a 100-200-300-50 KN pattern. For the raised PU, the loads increase and decrease in approximately a 50-75-400-100 KN pattern.. It should be noted that this load pattern is the same regardless of the method of calculation (Sum of Peak Loads vs. Peak Row)

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Peak cell loads on rows 3 and 4 for standard and raised pickups

Standard pickup meets suggested requirements, raised pickup does not

		Metric 1: Sum peak cell loads (kN)		Metric 2: Sum peak cell loads up to 40 ms (kN)	
		Row 3	Row 4	Row 3	Row 4
Pickup	Standard	279	328	205	321
	Raised	94	447	45	397

- 1. Sum of peak cell loads on rows 3 & 4 > 100 kN – effective VNT
- 2. Sum of peak cell loads up to 40ms on rows 3 & 4 > 100 kN - effective VSI

Full-sized Pickups-to- Small-sized Passenger Car Full Frontal Impacts

Standard and Raised PU

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Test Configuration for Full sized Pickup to Small Passenger Car Tests

	Test 1		Test 2	
	Full Sized Pickup	Small Passenger Car	Full Sized Pickup	Small Passenger Car
Vehicle Details	Model Year 2006	Model Year 2005	Model Year 2006 Raised by 100mm	Model Year 2005
Dummy type (Driver/Pass)	H-III 50% / H-III 50%	H-III 50% / H-III 5%	H-III 50% / H-III 50%	H-III 50% / H-III 5%
Test Mass	2598 kg	1297 kg	2604 kg	1300 kg
Ride Height (Left/Right)	Front 875 / 883 mm Rear 911 / 912 mm	Front 653 / 660 mm Rear 645 / 652 mm	Front 976 / 978 mm Rear 1019 / 1023 mm	Front 646 / 658 mm Rear 636 / 644 mm
Impact Velocity	28.0 km/h	56.4 km/h	27.8 km/h	56.5 km/h
Test accuracy	Car was 53 mm Right Vertical accuracy unknown		Car was 43 mm Right Vertical accuracy unknown	

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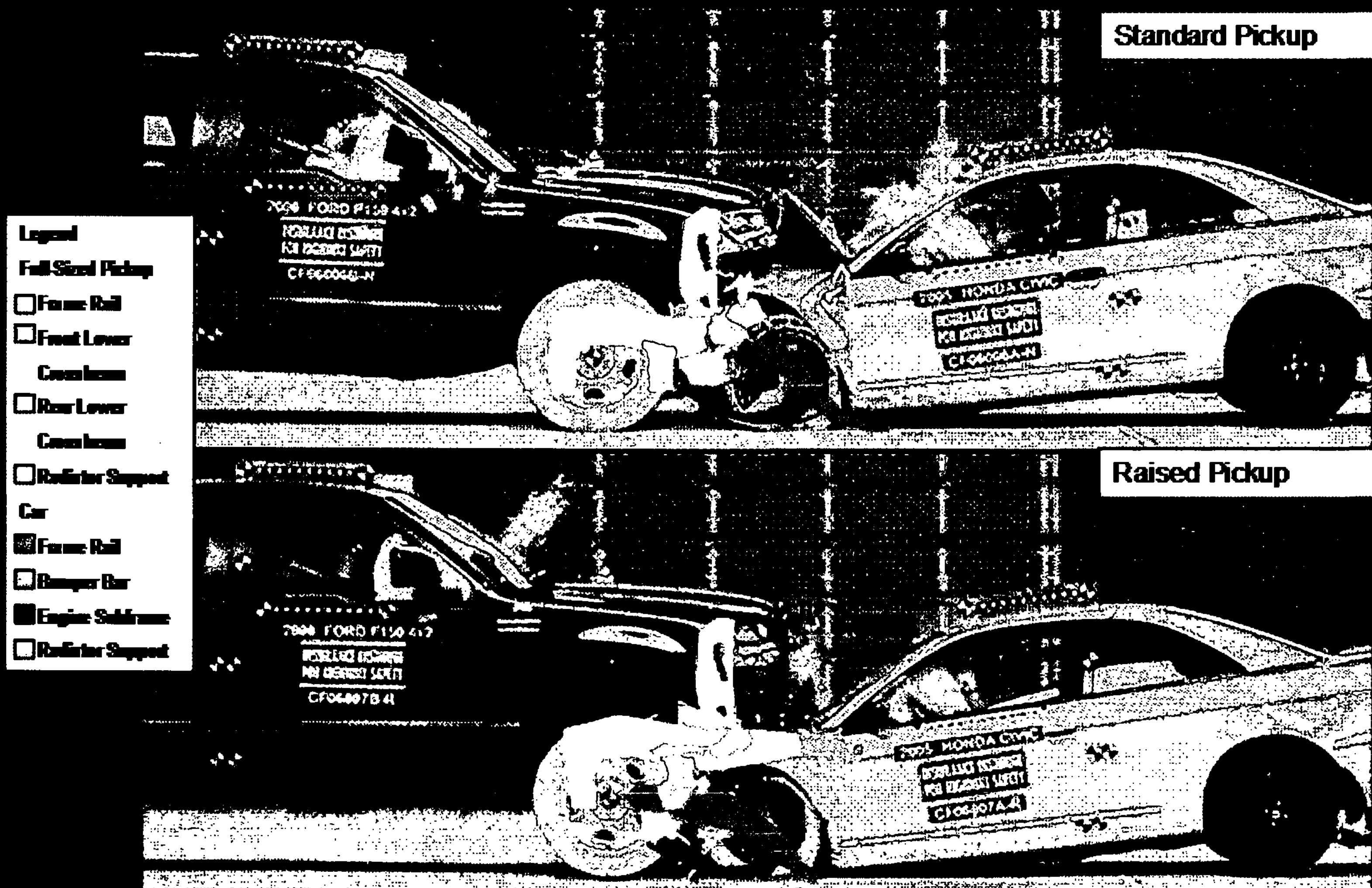
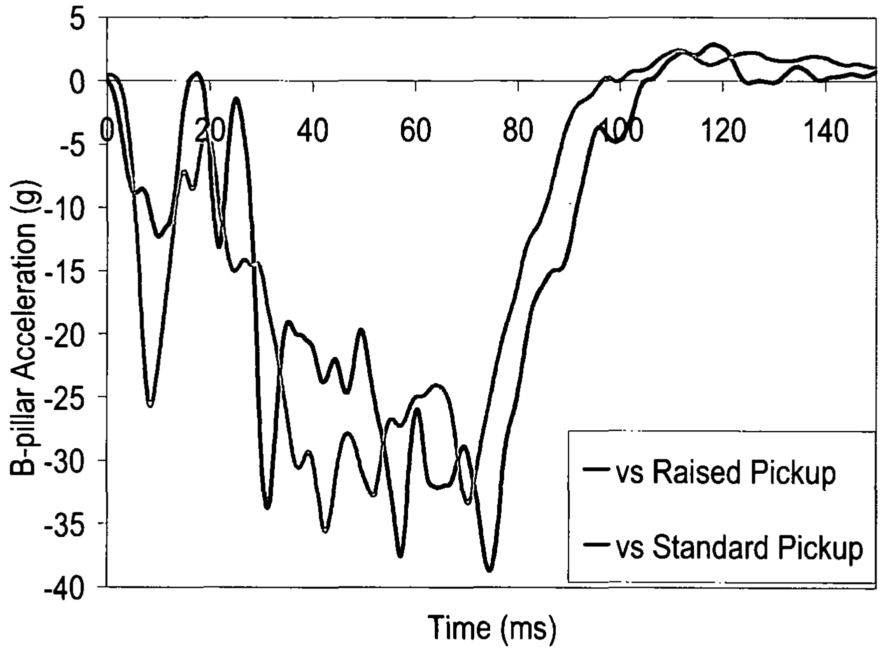
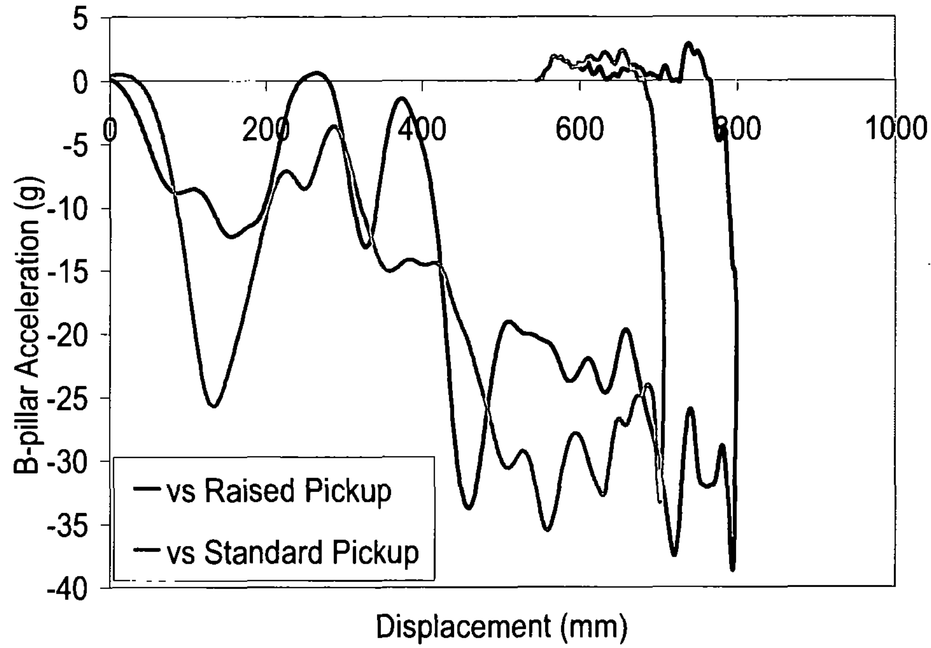
Pre-Test Alignment of Standard (top) and Raised (bottom) Pickup with Car

Pickup vs Car Tests Showing Greater Structural Engagement for Standard Pickup and Override for Raised Pickup



Compartment Deceleration Pulses in Small PC Impacted by Standard and Raised PU





In the standard ride height PU case, the vehicle structures were aligned resulting in initial PC's cabin 'G' to rise up to 25 G by 10 ms. This compared to about 10 G in the test with the raised PU due to override

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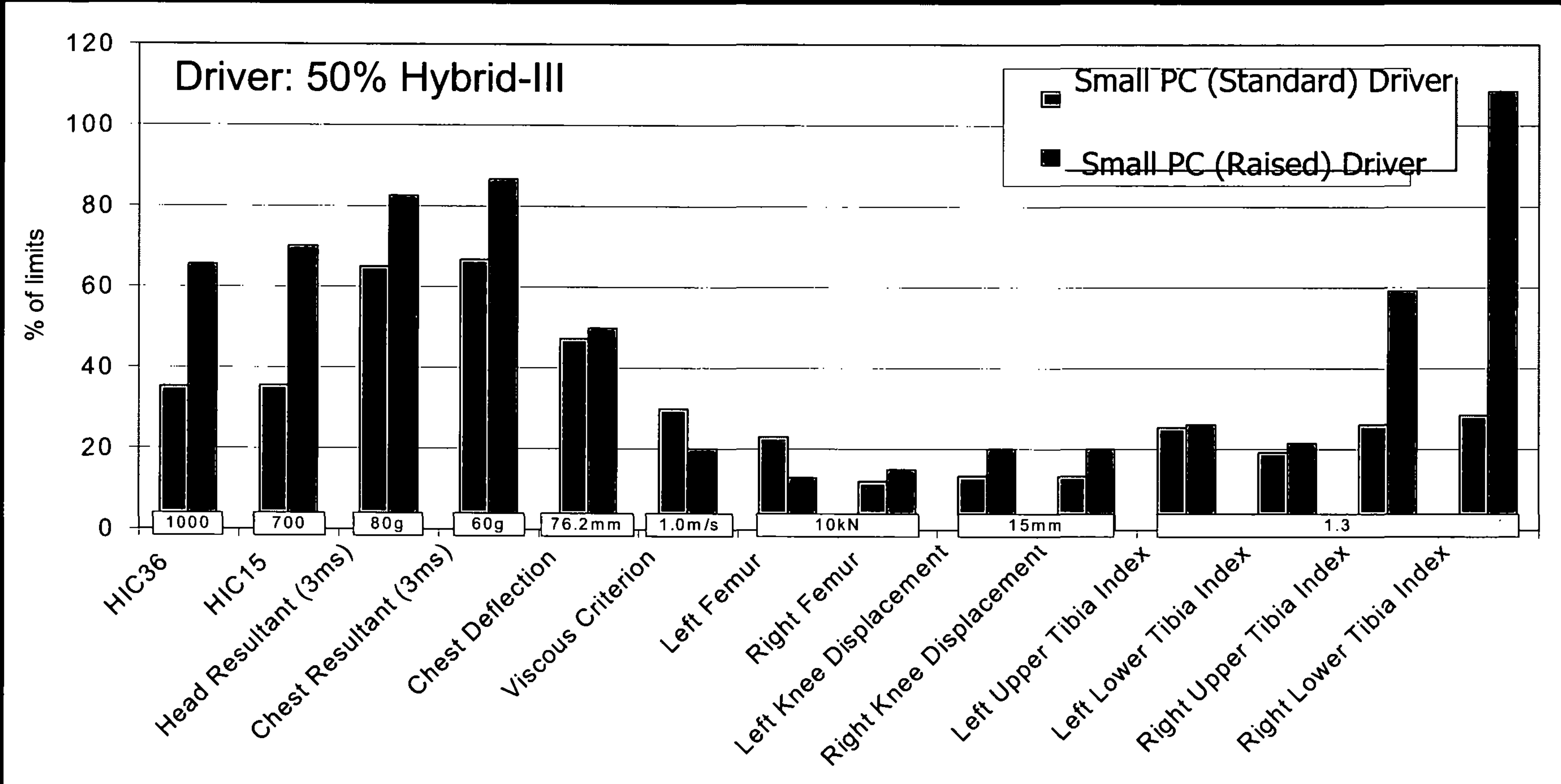
Dummy Responses of the Driver 50th % in the Small PC

Almost All Injury Indices Caused by Raised Pickup Are Higher



Note: limits which criteria are normalised to are shown at base of each column

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Produced in Bryson v. Rough County LLC
Subject to Non-Sharing Protective Order

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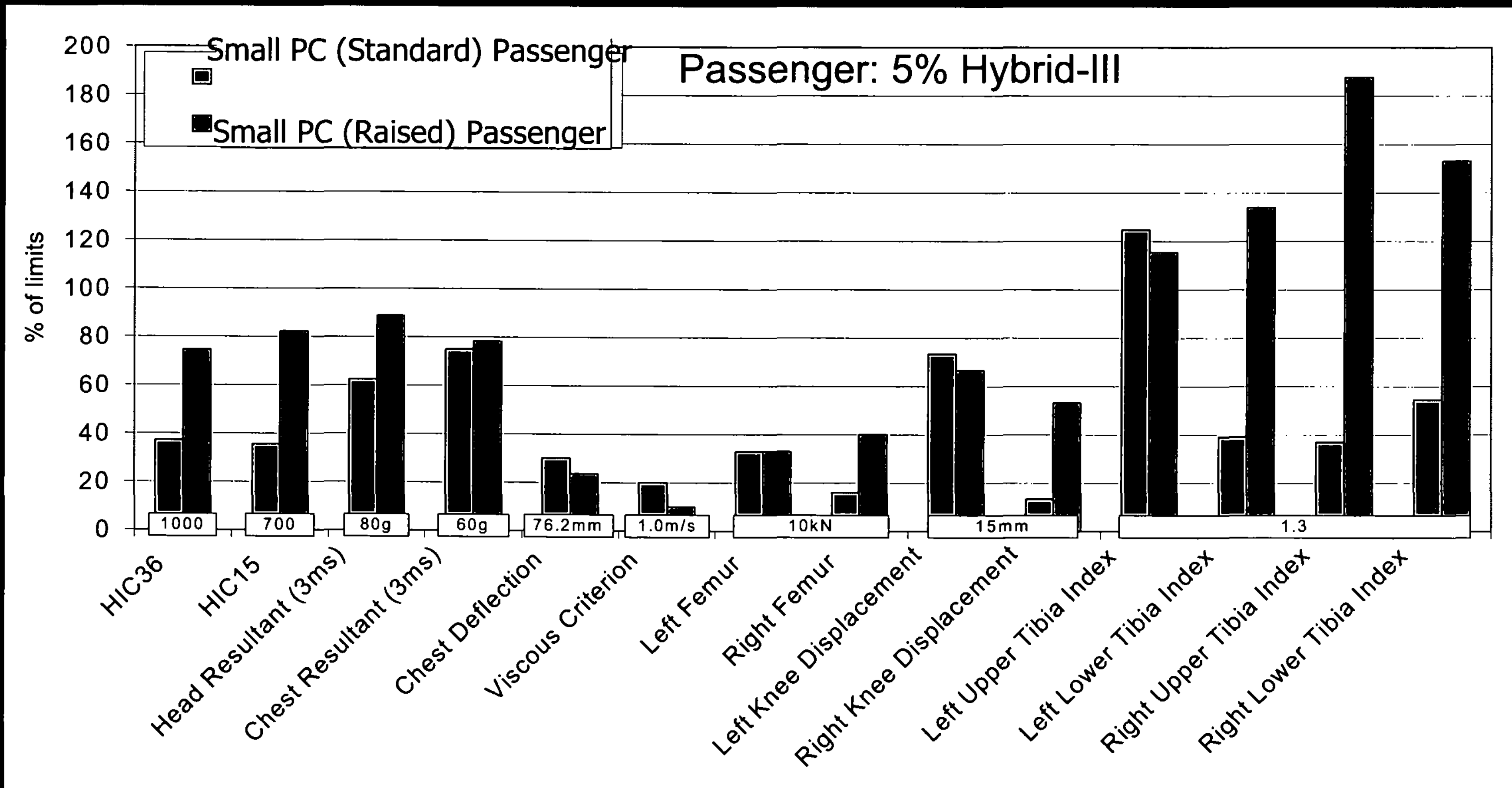
Dummy Responses of the Passenger 5th % in the Small PC

Almost All Injury Indices Caused by Raised Pickup Are Higher



Note: limits which criteria are normalised to are shown at base of each column

(same limits used for 5% H-III as 50% H-III)

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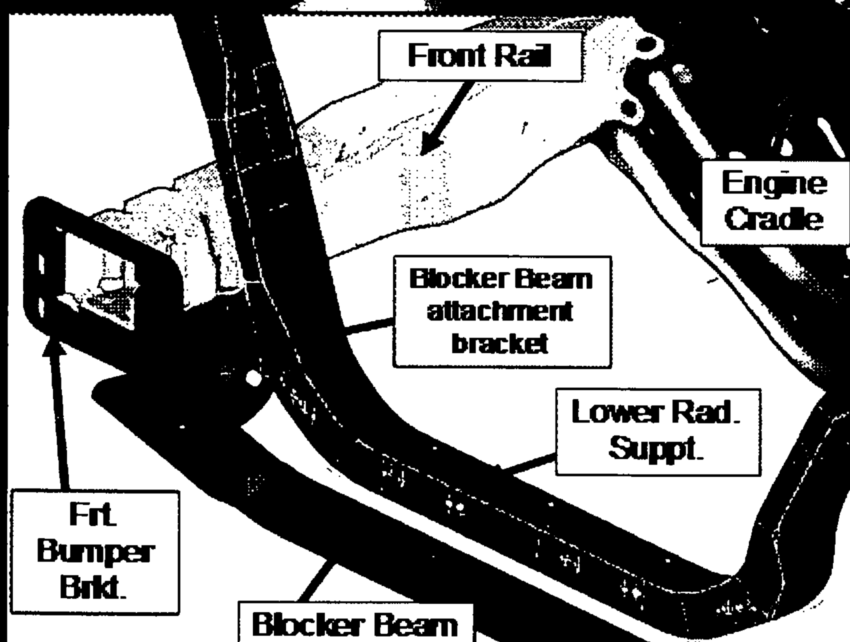
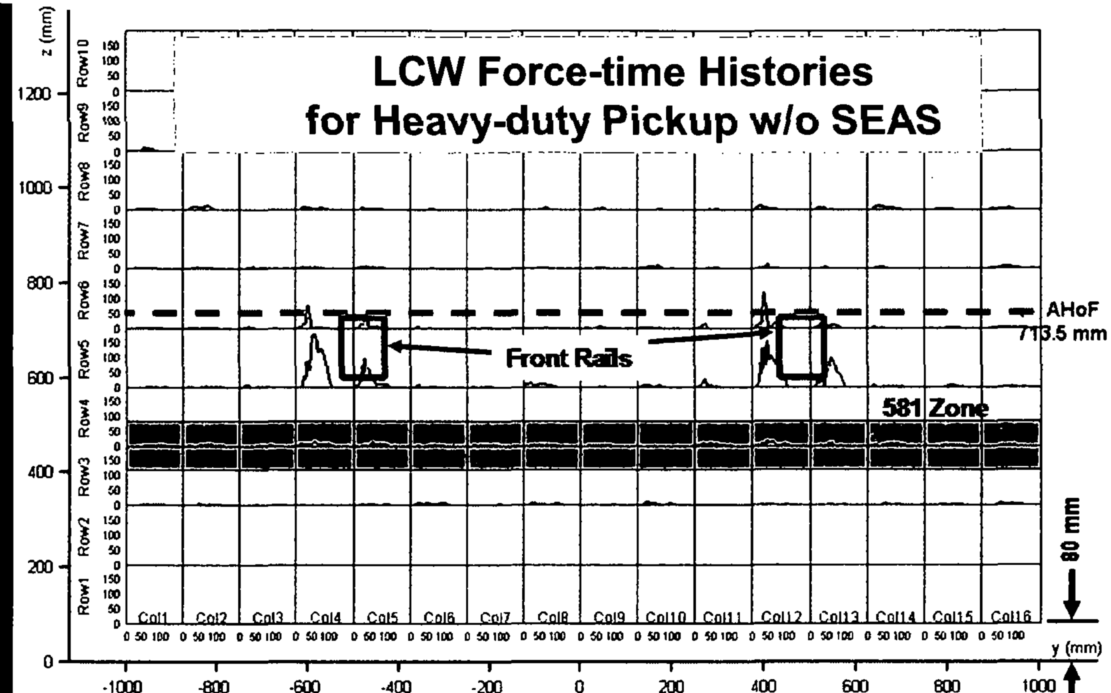
Test Series 2 – BlockerBeam type SEAS

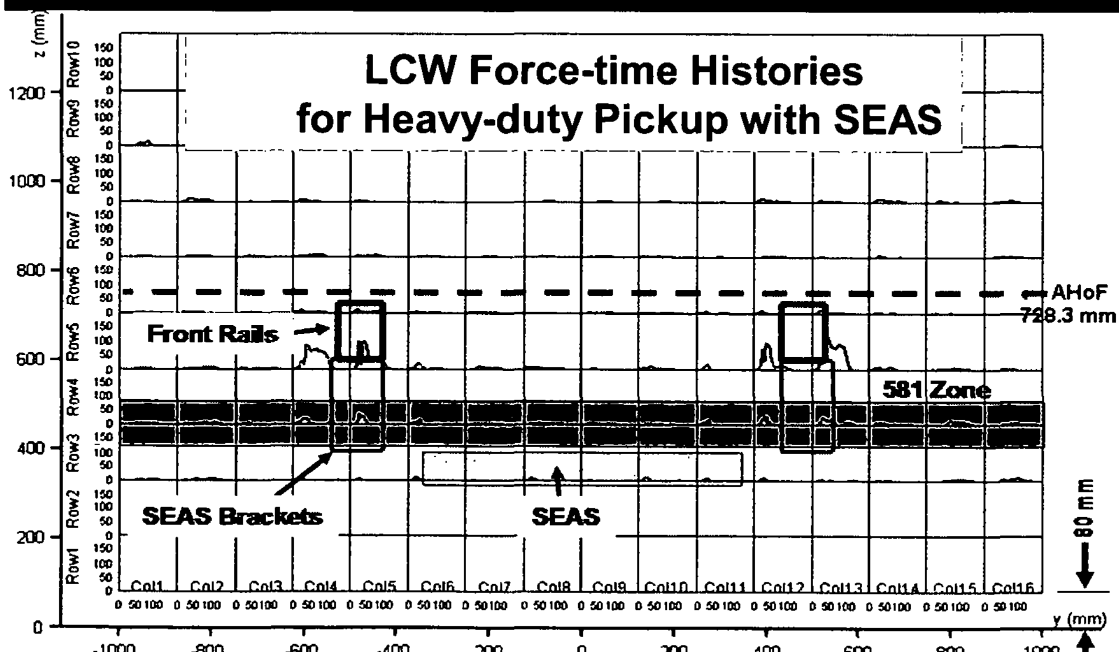
FWDB and Vehicle-to-Vehicle Tests

Vehicle-to-Barrier in NCAP Set-up



- Compatibility metric within rows 3 and 4
- Heavy-duty Pickup w/wo BB against a 125mmx125mm load cell TRL Barrier with deformable face to obtain force-time history "fingerprint" for impacting vehicle front-end characteristics


LCW Force-time Histories
for Heavy-duty Pickup w/o SEAS
z (mm)
Row10
Row9
Row8
Row7
Row6
Row5
Row4
Row3
Row2
Row1
AHoF
713.5 mm
Front Rails
581 Zone
80 mm
Col1 Col2 Col3 Col4 Col5 Col6 Col7 Col8 Col9 Col10 Col11 Col12 Col13 Col14 Col15 Col16
y (mm)
-1000 -800 -600 -400 -200 0 200 400 600 800 1000
0 200 400 600 800 1000 1200


LCW Force-time Histories
for Heavy-duty Pickup with SEAS
z (mm)
Row10
Row9
Row8
Row7
Row6
Row5
Row4
Row3
Row2
Row1
AHoF
728.3 mm
Front Rails
581 Zone
SEAS Brackets
SEAS
80 mm
Col1 Col2 Col3 Col4 Col5 Col6 Col7 Col8 Col9 Col10 Col11 Col12 Col13 Col14 Col15 Col16
y (mm)
-1000 -800 -600 -400 -200 0 200 400 600 800 1000
0 200 400 600 800 1000 1200

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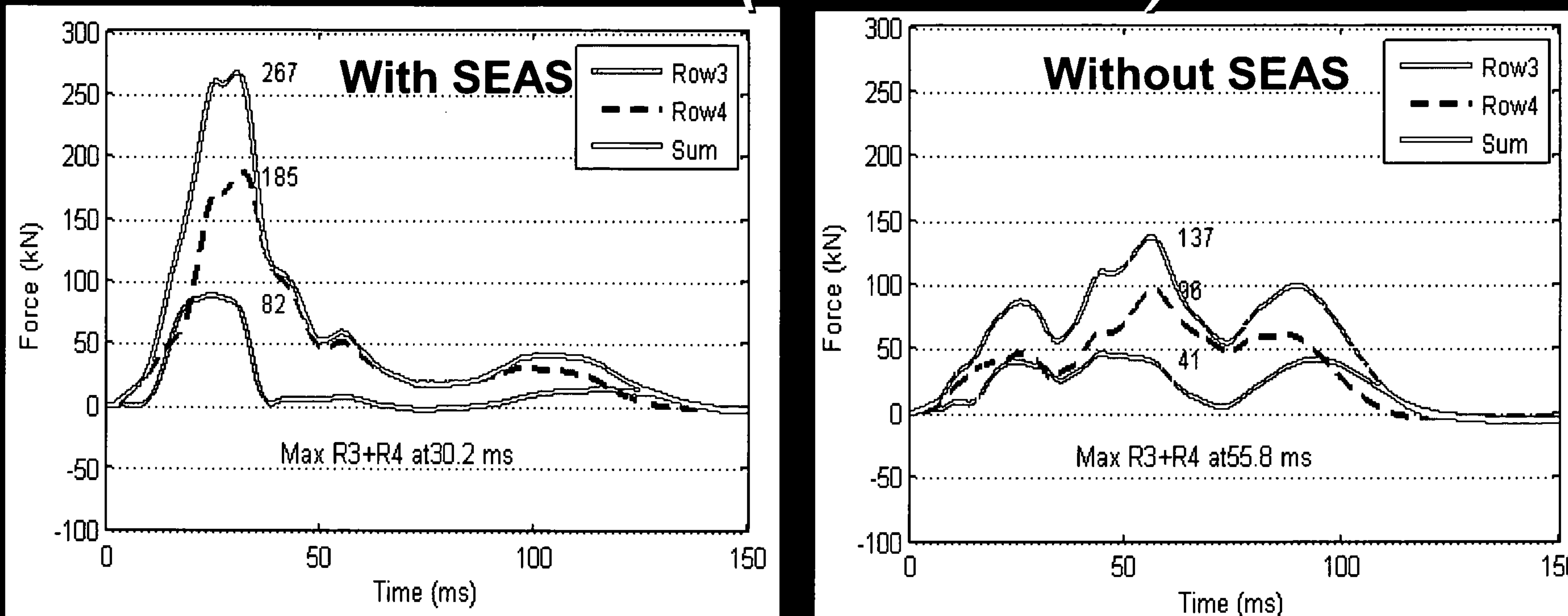
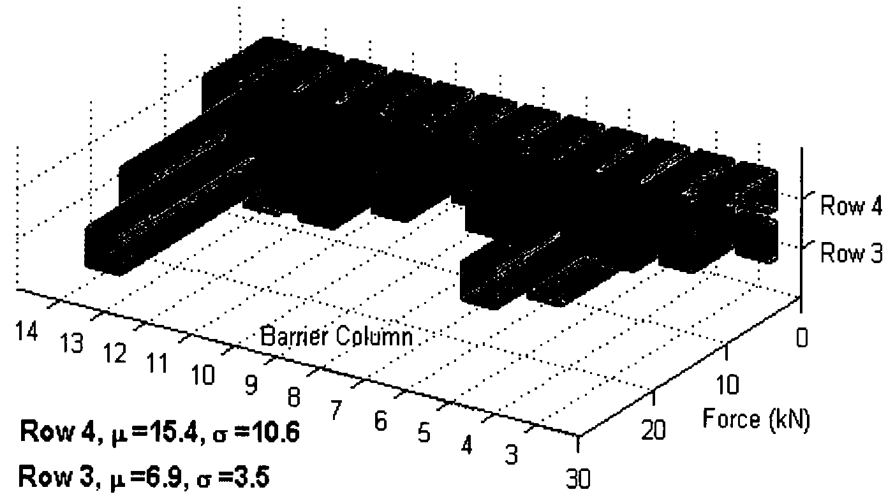
SEAS Helped Transfer Force to Lower Portions (Rows 3 & 4)

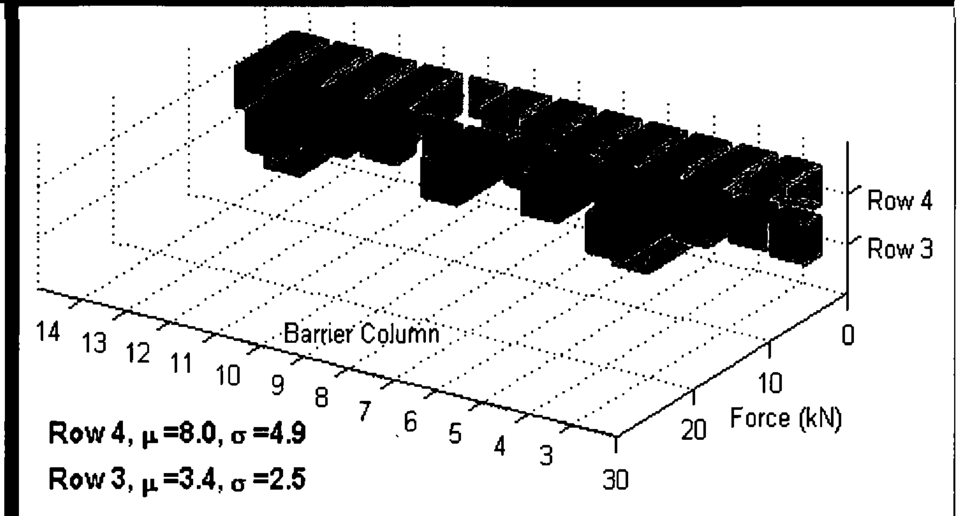


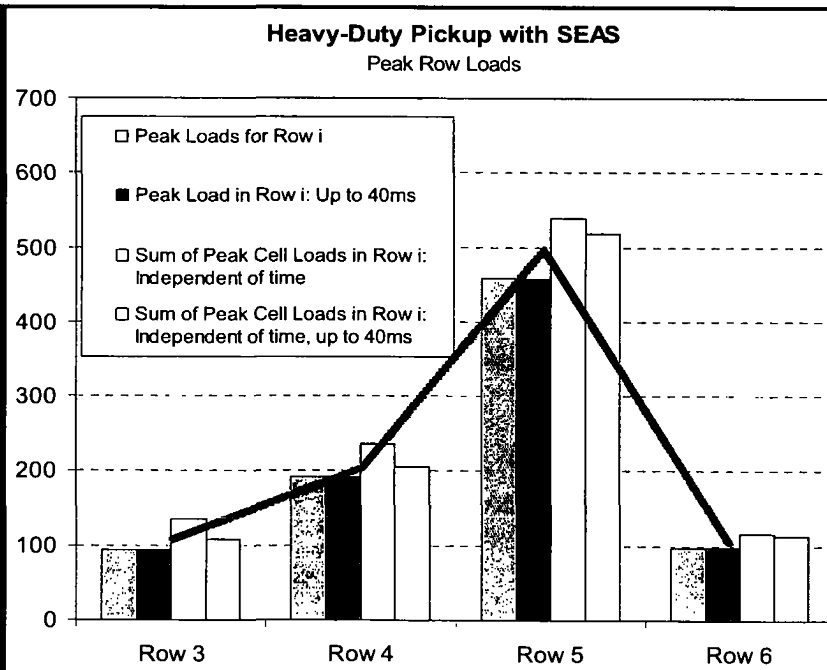
- With SEAS a significantly higher proportion of the load is observed
- Max. combined force occurs much later w/o SEAS (at 55.8 ms vs. 30.2 ms)
- Suggest to restrict a time window (time force peaks due to early interaction of the energy absorbing structures rather than due to engine engagement)
- Results identified a difference in total load supported by R3 & R4 of 130 KN, believed to be attributed to the SEAS structure

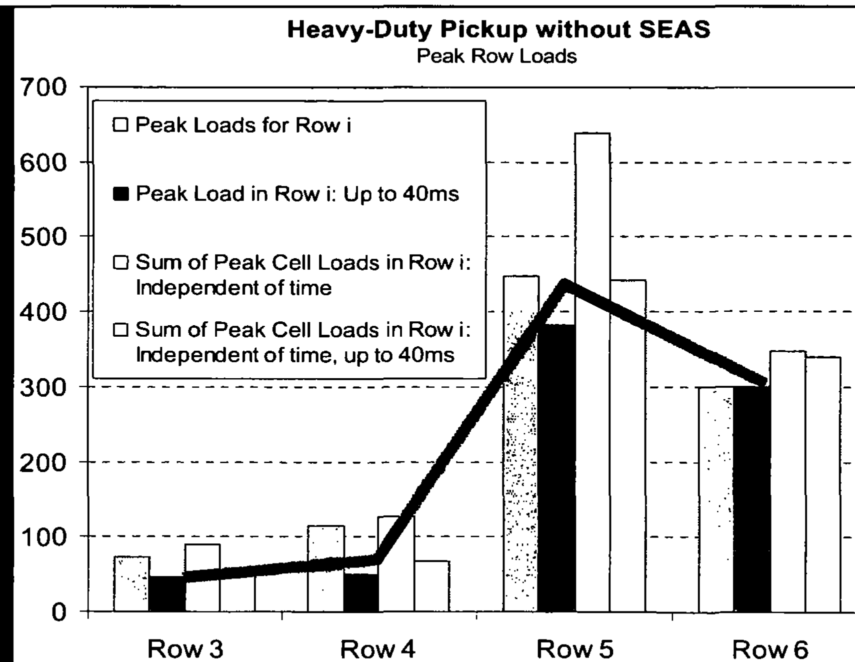
Peak Forces & Horizontal Load Dispersion

SEAS Helped Transferring Force to Lower Portions Rows (3 & 4)









Conclusions from LCW

It is recommended that potential compatibility Force-based Metrics Uses Time-dependent Peak load Sum

Heavy Duty Pickup		Metric 1 Sum of peak cell loads (kN)		Metric 2 Sum of peak cell loads up to 40ms (kN)	
		Row 3	Row 4	Row 3	Row 4
	Standard	136	242	109	212
	No SEAS	91	129	56	68

- VNT & VSI (TRL) use the sum of peak forces method, set 100 KN min row load target and calculates loads below target row
- A 40ms time limit and a target load of 100KN on R3 and R4 can distinguish the presence of SEAS

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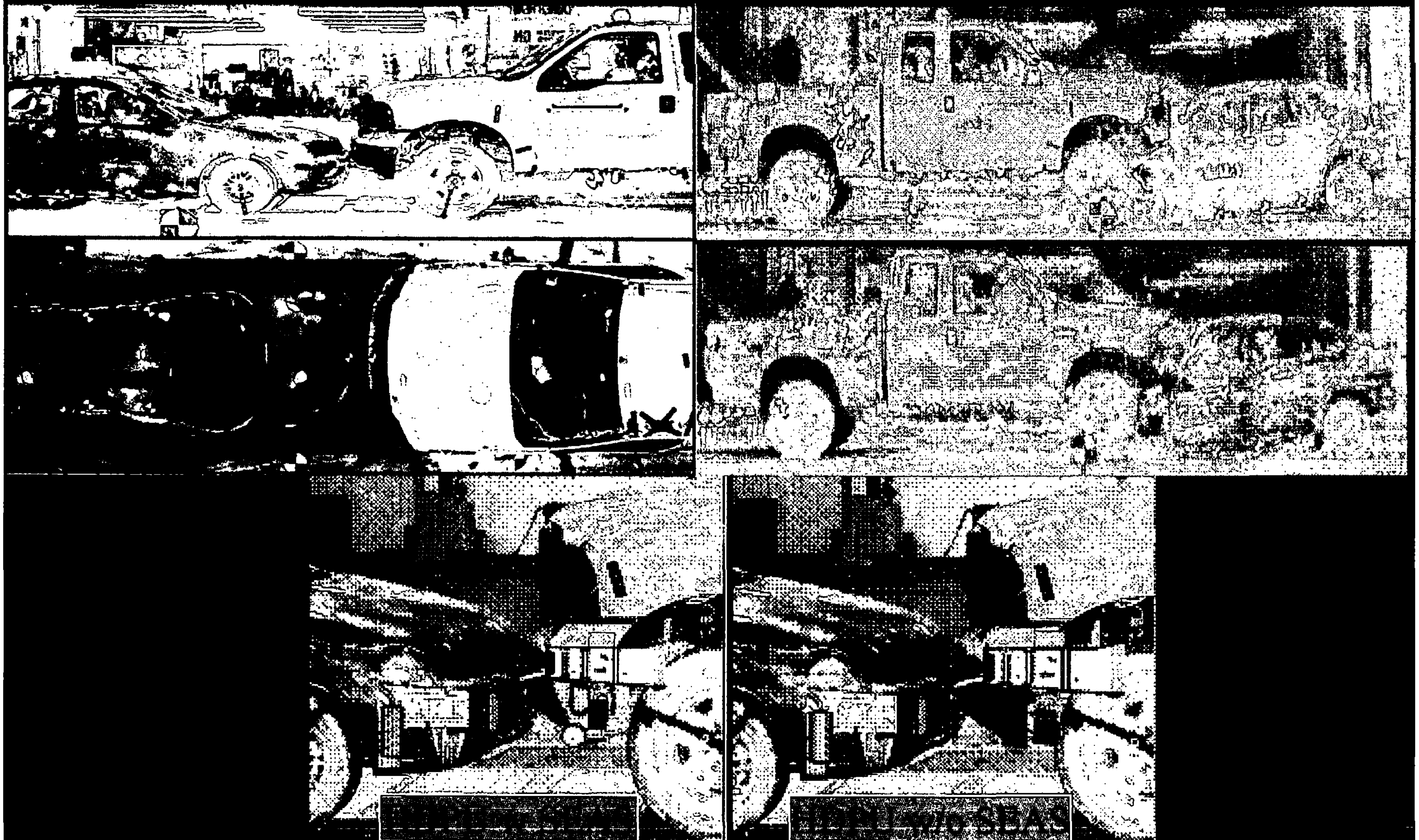
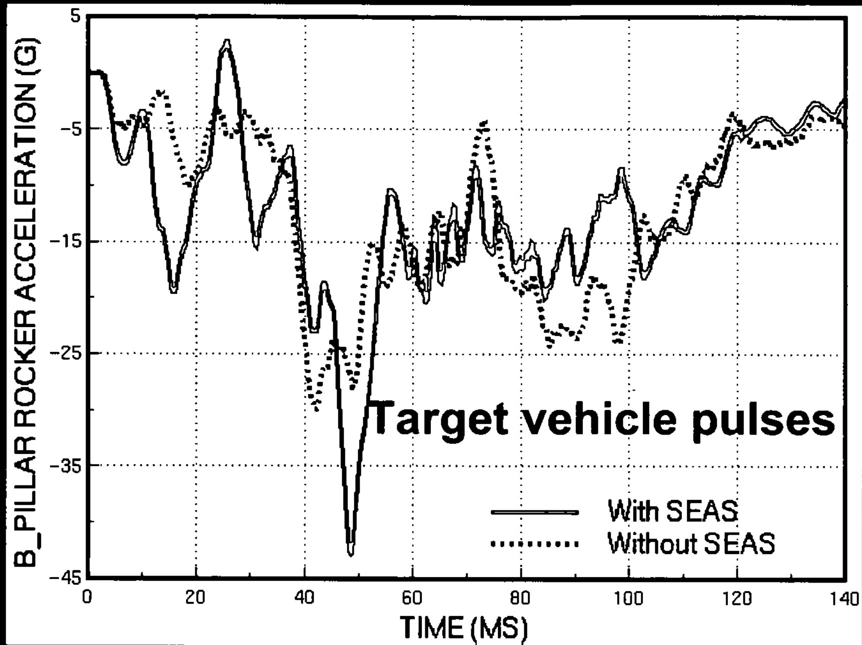
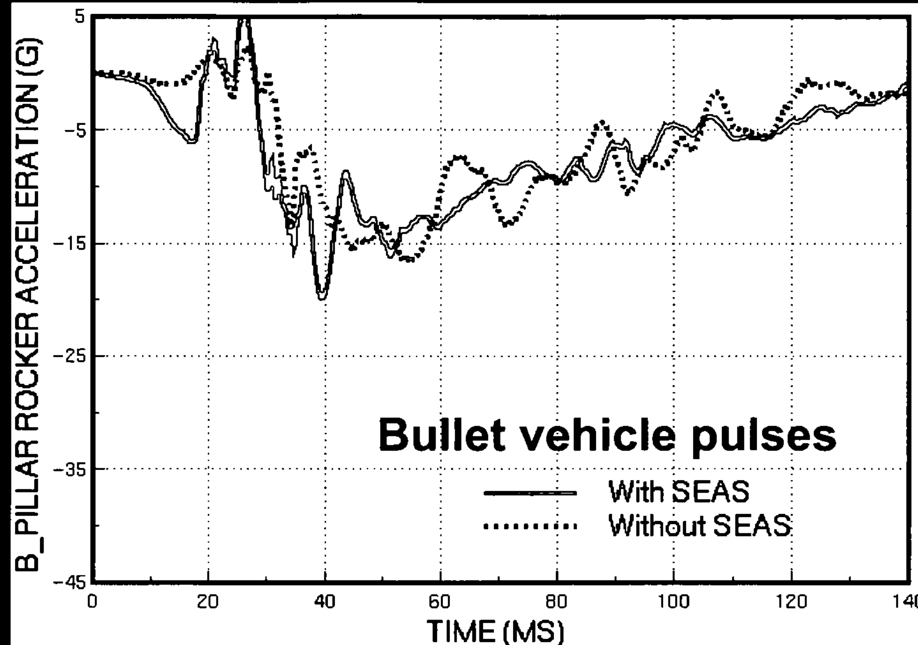
Vehicle-to-Vehicle Impact Test



Full Frontal collinear impact, Bullet speed 82.5 kph, DV = 56 kph in Target
Bullet vehicle weight 3191 Kg & Target vehicle weight 1531 Kg

Vehicle-to-Vehicle Test Results/Discussions

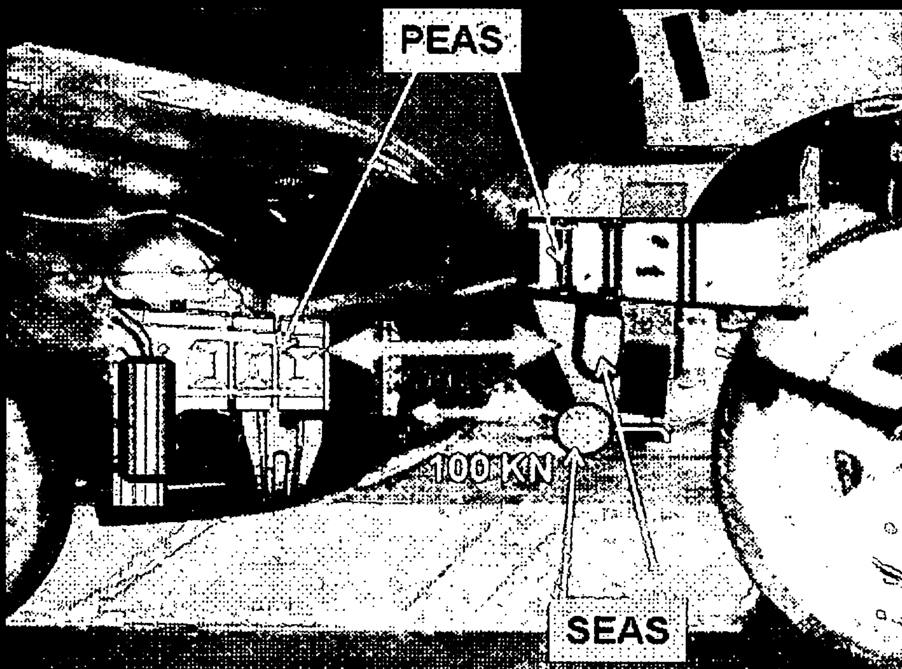


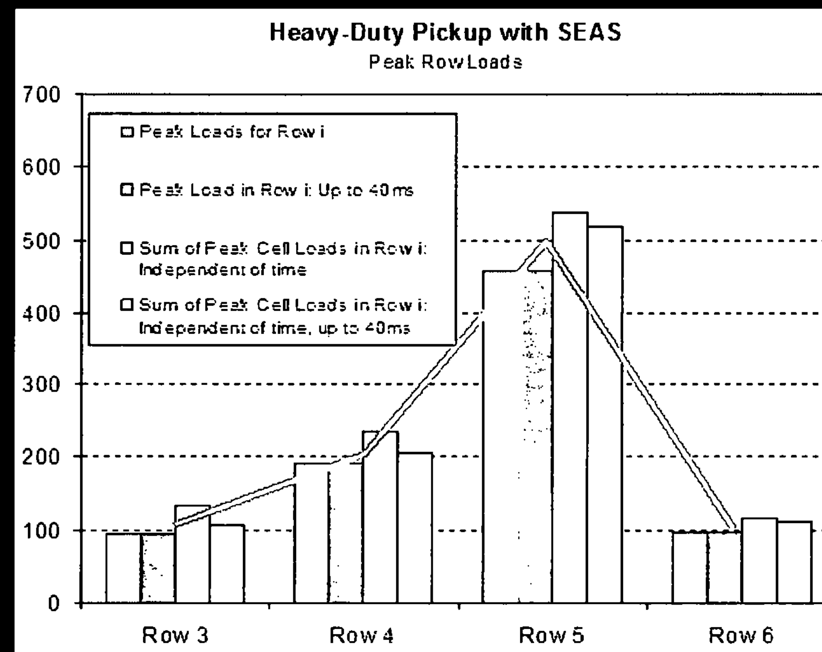


- SEAS engages the PEAS of the target (T) and transmit a larger force causing it to experience 20 G deceleration at about 20ms
- Approximately 304 KN force is acting on the target at this time
- Such force level was observed in the interaction zone R3 & R4 in the LCW test impacted by the heavy-duty pick-up with SEAS
- The target vehicle has lower deceleration level when no SEAS
- Within 25-35 ms of initial impact, the bullet (B) overrode the target PEAS and contacted the target's engine at approximately 30 ms

LCW & V-to-V Correlation for Proposed Metrics

- ***FWDB tests show that SEAS delivered forces in rows 3 and 4 around 100 and 200 KN, respectively (Total of 300 KN)***
- ***Force in the interaction zone in V-to-V imp. totals around 300 KN***





- It acts on PEAS of Target and is reacted by SEAS of Bullet (40ms)
- This force level is both sufficient to crush the front part of the Target's PEAS and to deform Bullet's SEAS (BB &brackets)

Common Observations of Test Series 1 & 2

In FWDB Tests:

- LCW with deformable face distinguished the differences in rail alignment and the presence of SEAS (BlockerBeam) and provided means to develop potential compatibility metric assessed in vehicle-to-vehicle impact

- Row load based metrics 1 & 2 (VNT & VSI) can discriminate rail alignment of standard and raised PUs and can distinguish the presence of SEAS

- The presence of SEAS (BlockerBeam) and aligning the rails in the 581 interaction zone helped transferring approximately 100KN force from higher rows R5 & R6 to lower portions rows 3 & 4 of the LCW

- Using the proposed minimum load of 100kN criteria in R3 and R4, raising the full-sized pickup or removing the BlockerBeam SEAS resulted in a load < 100KN in R3 and reduced the load in R4 by approximately 323 KN. In both cases the proposed criteria of 100KN min. in R3 and R4 was not met

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Common Observations of Test Series 1 & 2

In Pickup (raised & w/o SEAS) -to- Passenger Car Impacts:

- Change in the acceleration pulse experienced by the struck PC
- SEAS engages the PEAS of the PC delivering 20 G at ~12ms vs. 10 G with no SEAS. Standard PU deliver ~23 G-at bout 10ms vs. 10 G in raised PU
- Removing SEAS and raising the PU resulted in lesser structural interactions in the first 30ms-40ms of impact
- Max. combined collapse between the vehicles was between 160 mm and 184 mm higher in the raised PU or with no SEAS

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Why Not

Use measurement of compatibility by current US NCAP fixed wall rigid barrier (FWRB) test with 125 load cells and a conformance to be determined by peak barrier loads >100 kN in rows 3 & 4 ?

- Disagreement over ability to detect SEAS
- Ability of FWRB test to assess changes associated with the height of PEAS, but may not be able to assess the presence of BlockerBeam® type SEAS, or the presence of Subframe type SEAS
- Row load based metrics derived from FWRB may discriminate rail alignment of standard and raised PUs. Questionable ability to distinguish SEAS presence
- The Load-displacement characteristic, front-end stiffness derived from FWRB do not represent those in v-to-v crashes
- The deformation and collapse mode of the front end structure and energy shared are also not representative of that in v-to-v crashes

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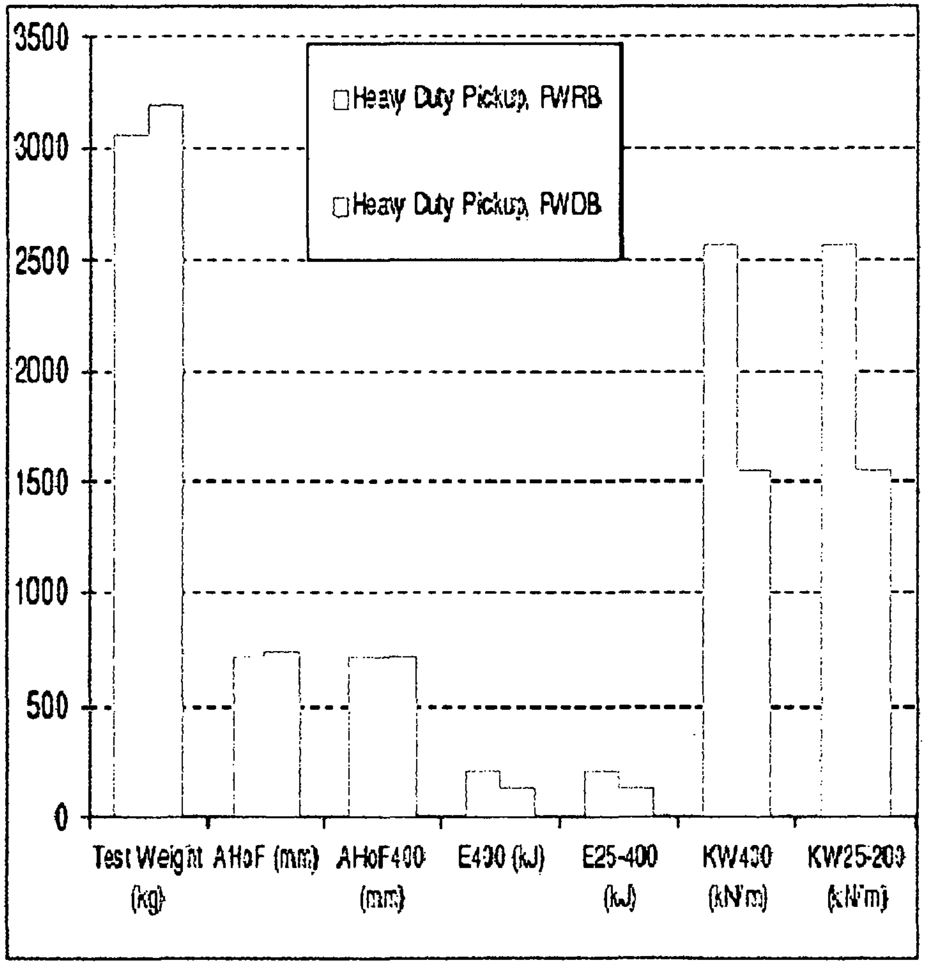
Heavy Duty PU FWDB & FWRB Tests

	Heavy Duty Pickup, FWRB	Heavy Duty Pickup, FWDB
Model Year	2006	2006
Impact Speed (kph)	55.7	57.47
Test Weight (kg)	3054.2	3185.6
AHoF (mm)	712.6	741.3
AHoF400 (mm)	712.6	724.2
E400 (kJ)	205.6	124.1
E25-400 (kJ)	204.7	123.9
KW400 (kN/m)	2568.8	1551.7
KW25-200 (kN/m)	2569.1	1554.5



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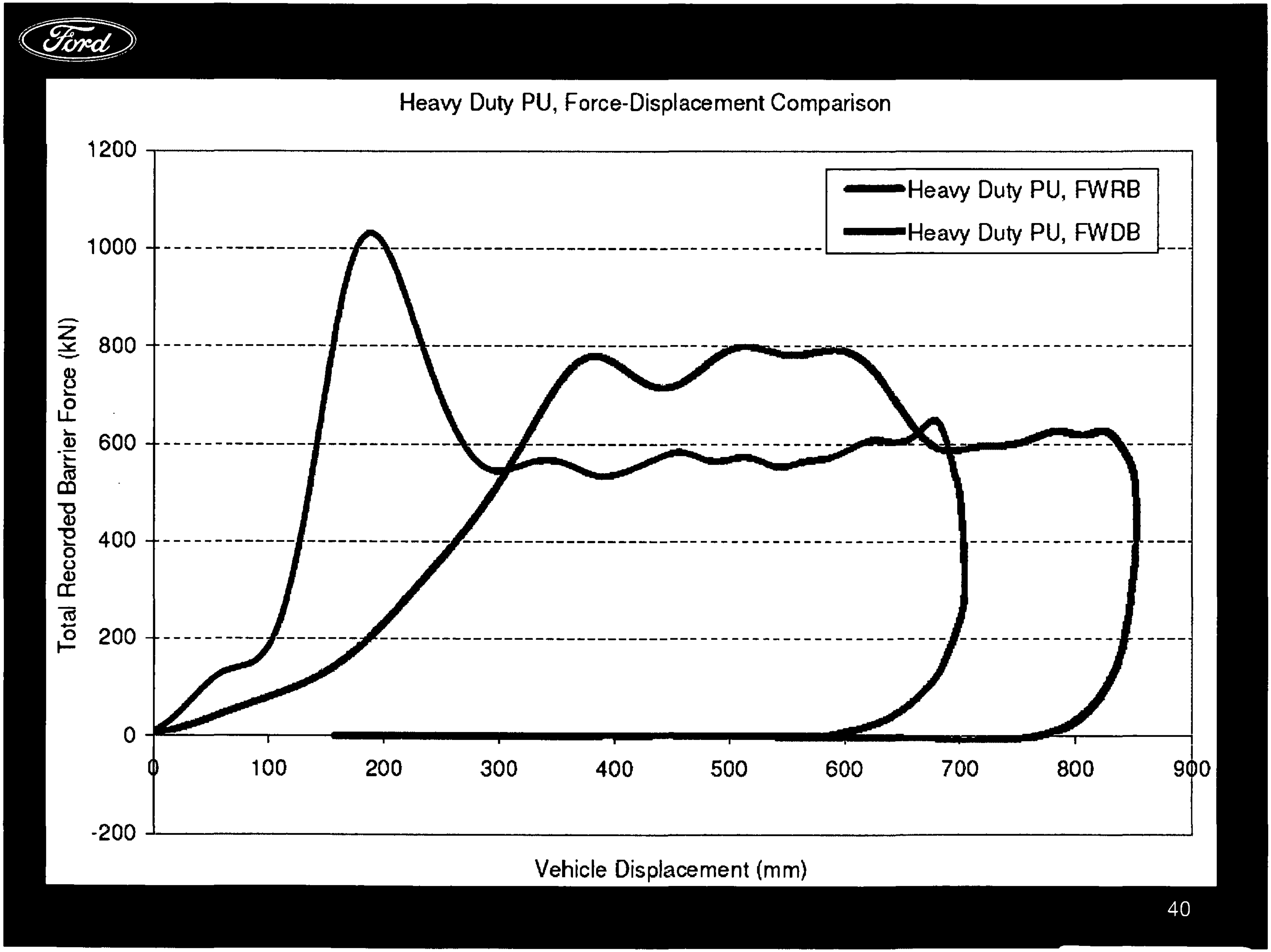
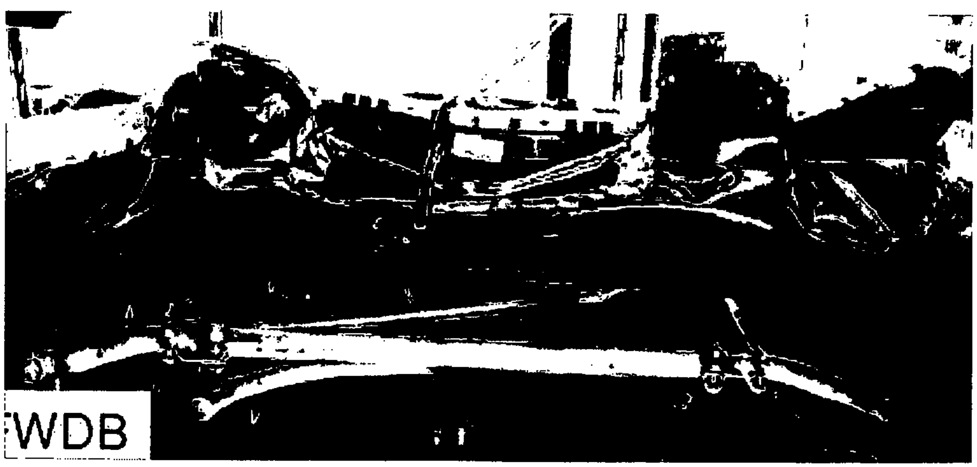

Ford
Heavy Duty PU, Force-Displacement Comparison
Heavy Duty PU, FWRB
Heavy Duty PU, FWDB
Total Recorded Barrier Force (kN)
1200
1000
800
600
400
200
0
-200
0
100
200
300
400
500
600
700
800
900
Vehicle Displacement (mm)
40

Heavy Duty PU Deformation in V2V , FWDB & FWRB test

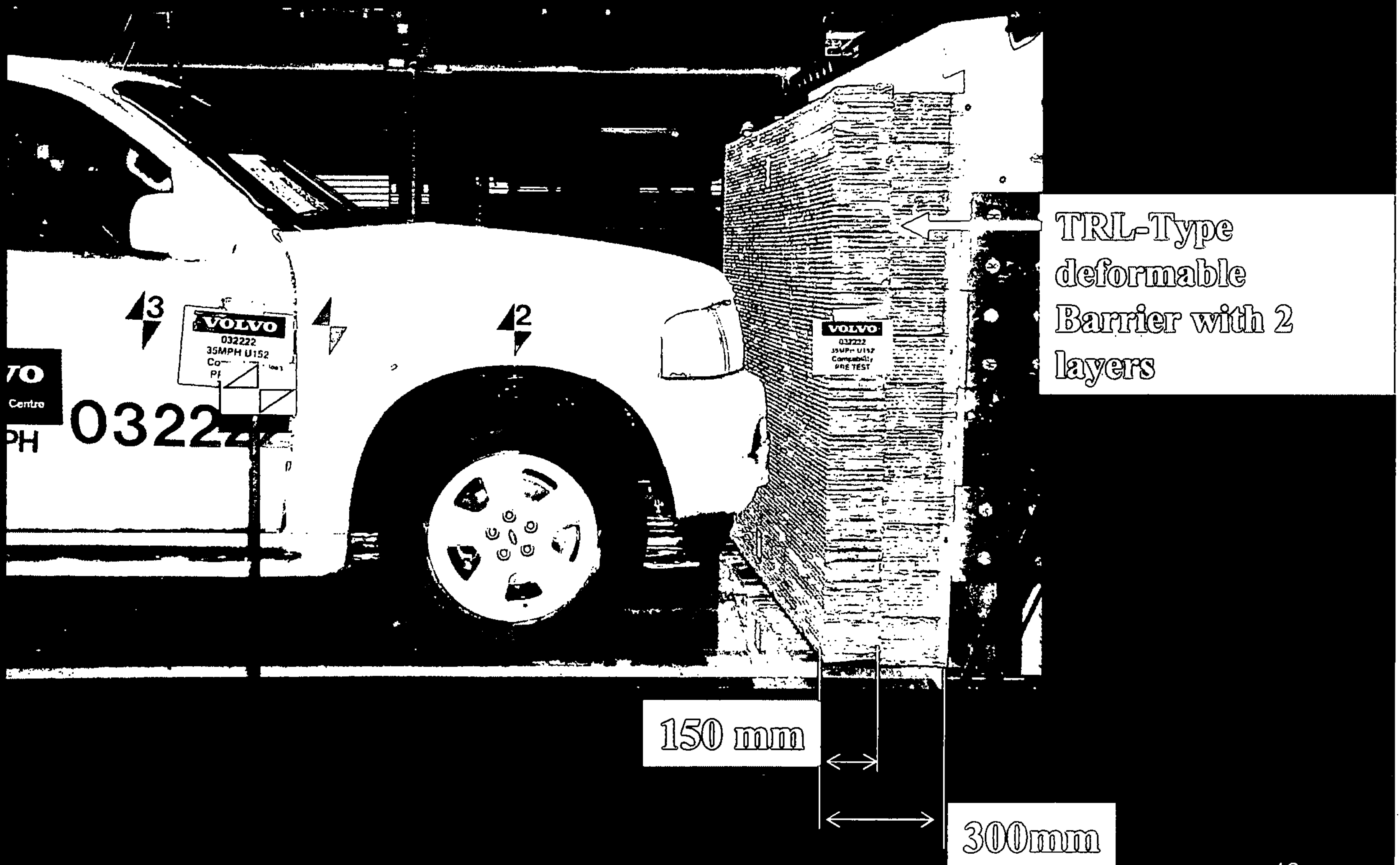


Other Metrics

- AHOF (AHOF100, AHOF400)
- KW400

3720 22234

Six Vehicle-to-TRL-Type Deformable Barrier Tests at 35MPH



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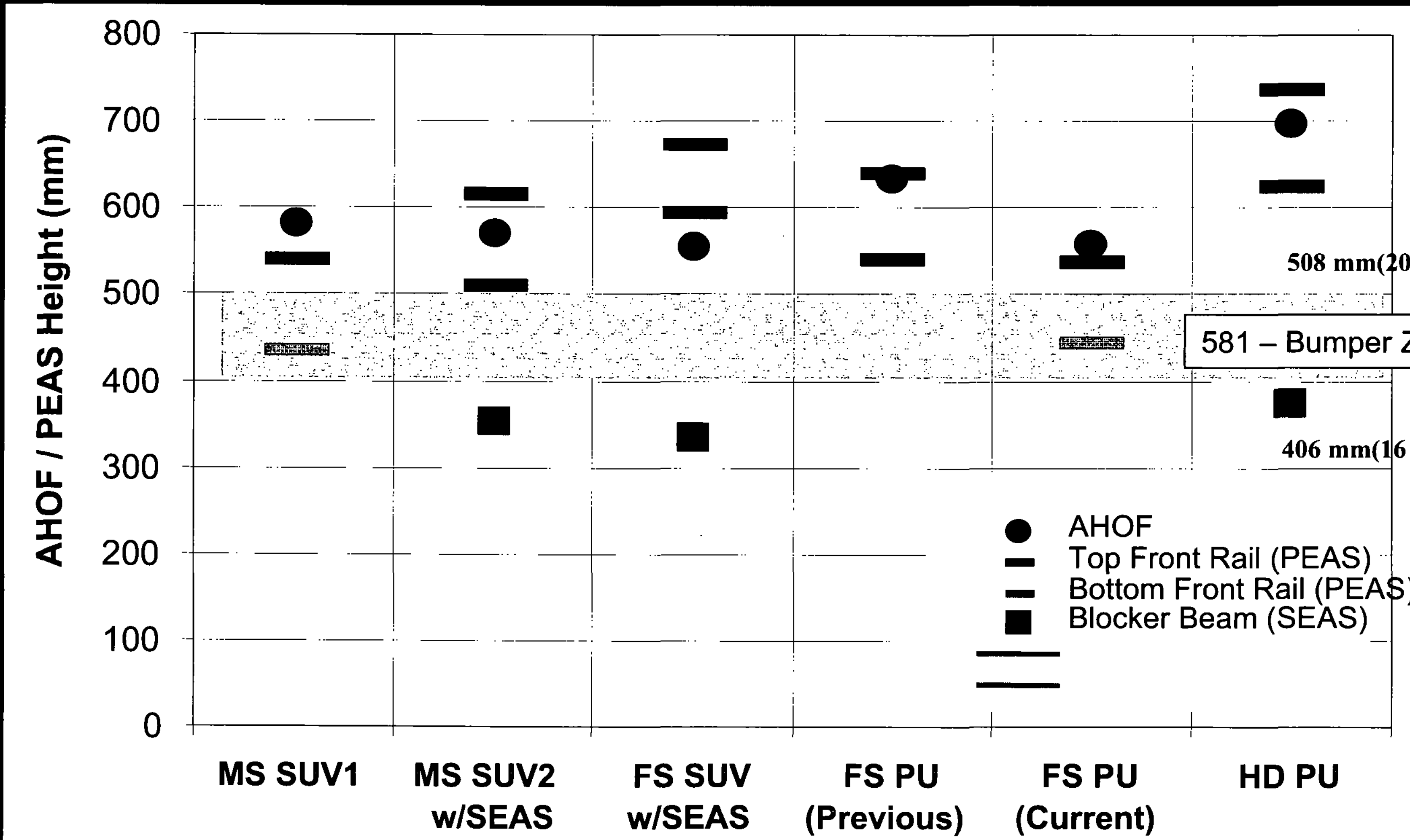
PEAS & SEAS Geometry with AHOF for LCW w/Deformable Element

125 mm x 125 mm, 35 mph (56 km/h)

- AHOF Does not Indicate Position of the Rail Consistently
- AHOF/HOF does not Indicate Presence of SEAS



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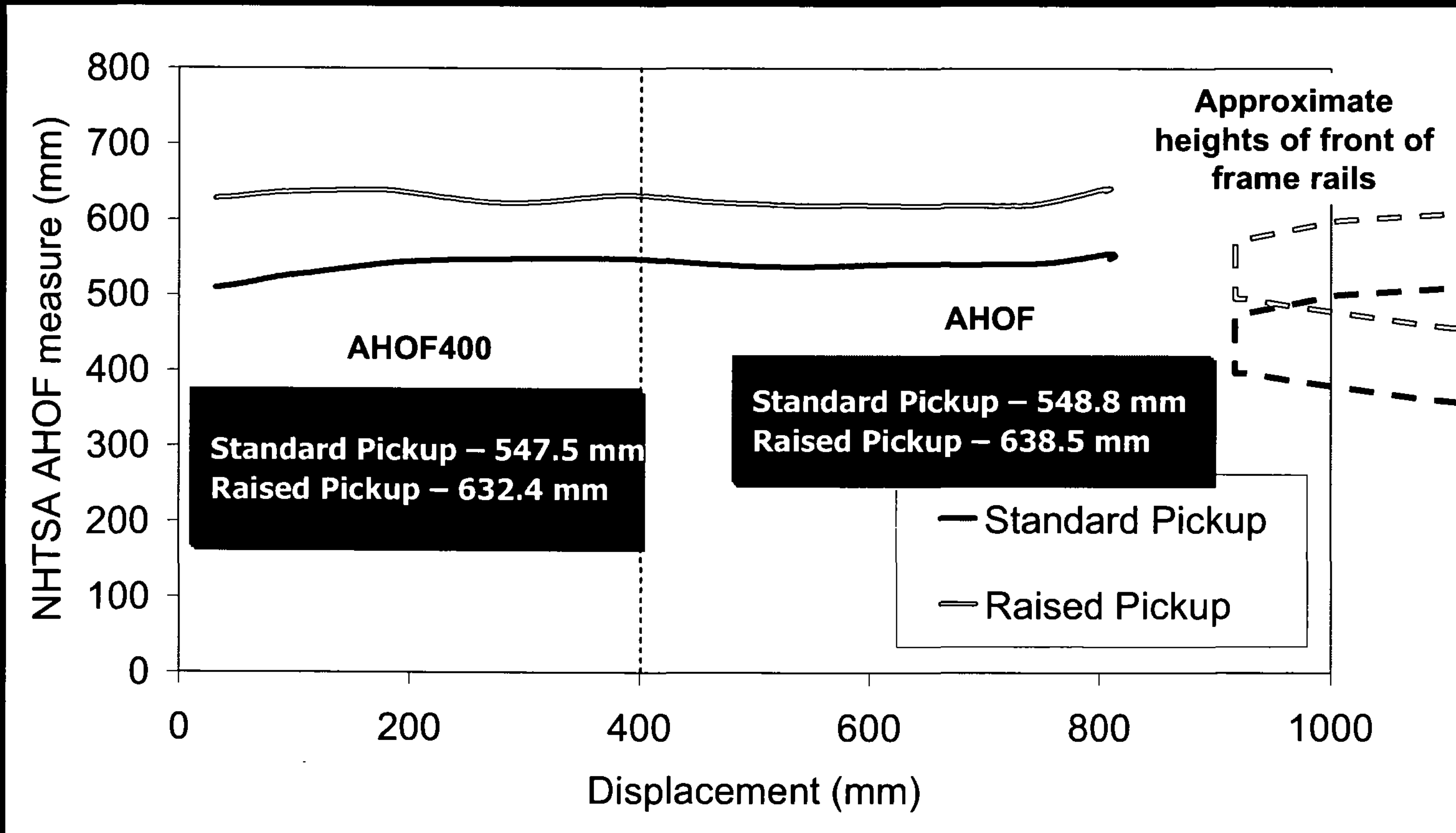
Comparison of AHOF against B-Pillar Displacement for Standard and Raised Pickups

- AHOF at Any Displacement Does not Indicate Position of the Rail



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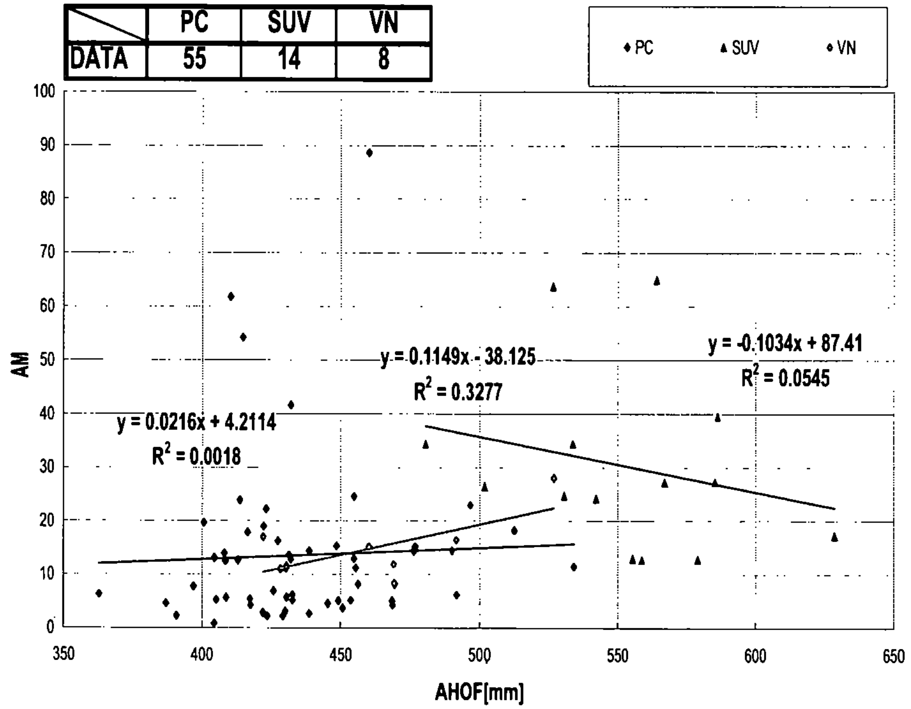
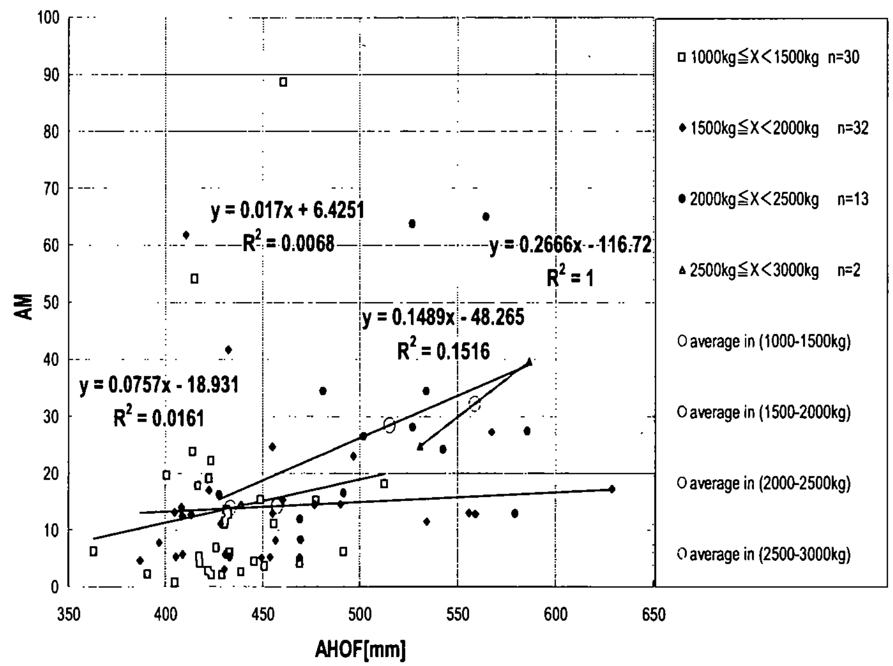
Investigation of HOF / AHOF as a possible 'metric' – statistical data

- AHOF Does Not Correlate with Aggressivity Metrics

	PC	SUV	VN
DATA	55	14	8



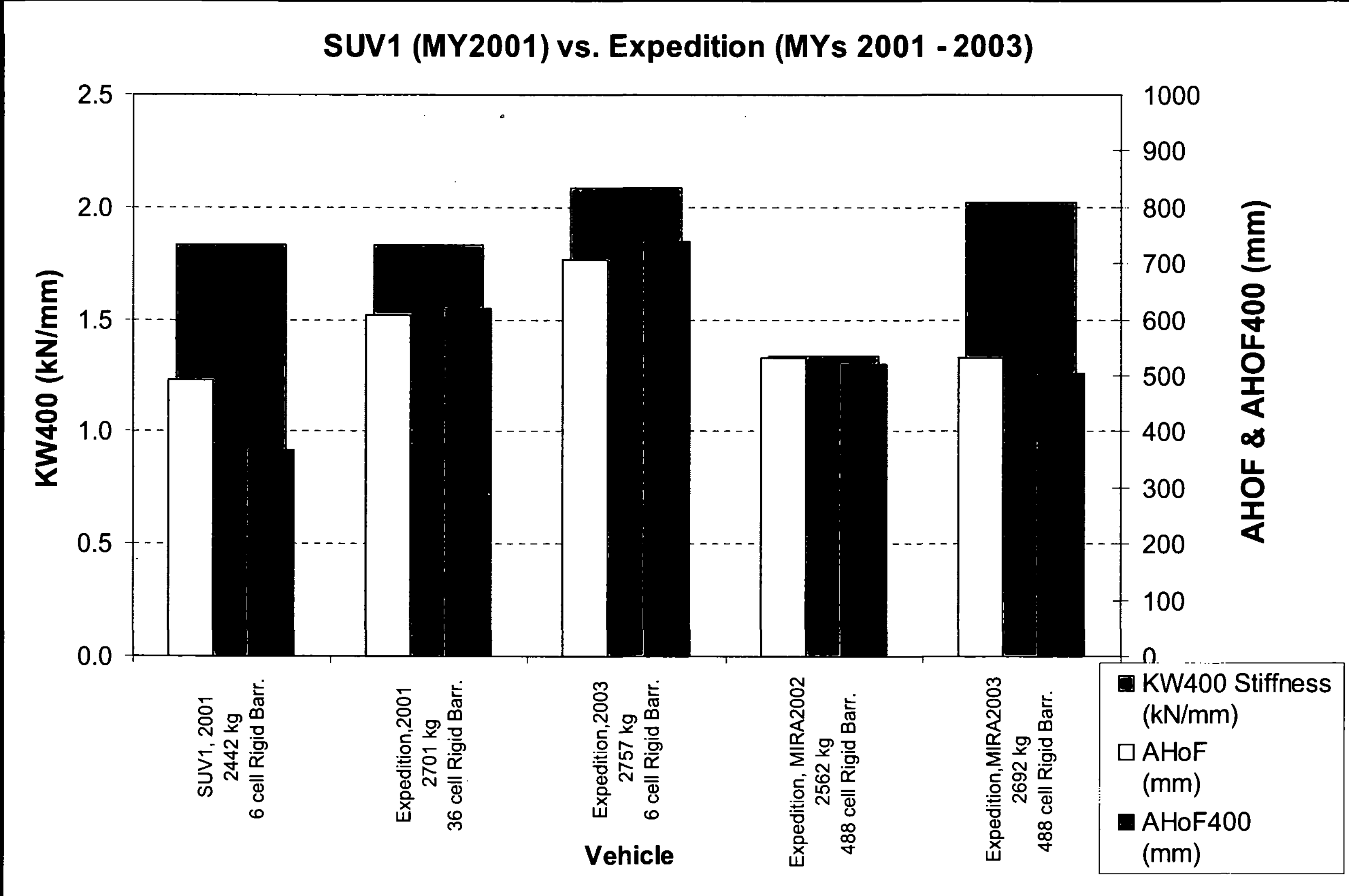


3720 22238

Further Analysis of NHTSA's Proposed Work Equivalent Stiffness Metrics (KW400) and Average Height of Force (AHOF400)

Geometrical Considerations

Distribution of KW400, AHOF, and AHOF400 from Rigid Barrier Load Cells



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Ford

Rigid Barrier Test Derived Metrics *Predicted* Real World Compatibility

- Based on the distribution of KW400, AHOF, and AHOF400 from rigid barrier load cell data, the real world compatibility of the Expedition/Navigator is expected to be less than that of the SUV1.
- Based on the higher curb weight of the Expedition/Navigator, which is at least 500 lbs. more than that of the SUV1, the real world compatibility of the Expedition/Navigator is expected to be about one-third less than that of the SUV1.
- Actual Real World data is inconsistent with the rigid barrier test predicted real world compatibility.

3720 22241

Ford

Actual Real World Data Show: Expedition/Navigator Is Not Less Compatible Than The SUV1 (FARS '99-'03)

IN CONCLUSIONS, AHOF and Kw400 FAILED TO PREDICT REAL- WORLD PERFORMACE

Fatal Target Vehicle rates* (front-to-front)

- '99 to '03 SUV1 = 0.18
- '99 to '03 Expedition/Navigator = 0.19

Fatal Target Vehicle rates* (front-to-side)

- '99 to '03 SUV1 = 0.40
- '00 to '03 Expedition/Navigator = 0.14

* Rates per 10,000 Registered Vehicle Years

3720 22242

Discussion

- Actual Real World data does not agree with predicted data from rigid barrier tests
- Factors other than the metrics derived from rigid barrier tests are involved
  - Front-end forces in the interaction area
  - Force-deformation measured in rigid barrier tests are not representative of those in vehicle to vehicle tests

Ford also Conducted Further Analysis of NHTSA's Proposed Average Height of Force and Work Equivalent Stiffness Metrics Measured at 400mm (AHOF400 & KW400 respectively). No Correlations were Found Between the Proposed Metrics, Derived from the FWRB, and Occupant Responses Obtained from Vehicle-to-Vehicle Impact Tests.

3720 22244

Conclusions and Recommendations

- Geometrical matching of frontal structures is a field proven countermeasure to further enhance compatibility in vehicle-to-vehicle crashes.
- An objective dynamic test procedure using the Full Width Deformable Barrier with high resolution load cells is recommended. This involves changing the current frontal test procedure for FMVSS208 and NCAP.
- Metrics based on loads in Rows 3 and 4 discussed earlier should be utilized to assess "adequate support" provided by the frontal structure.
- Alternative is to continue with the Alliance agreement with increased overlap of the front rails with the Part 581 zone- e.g. 75% vs the current 50%. This could be introduced in a regulation or the NCAP.

3720 22245

Thank You !!

Backup Slides

Proposed NHTSA Work Equivalent Stiffness:

Correlation Between KW400 and Injury Values in V2V Tests

NCAP LCW DATA

Vehicle Name	Test Number	Test Mass (kg)	KW400 Stiffness (kN/mm)	AHoF (mm)	AHoF400 (mm)
Accord,2004	5062	1624.0	1.16	424.0	519.3
Dodge Caravan,1996	4990	1976.2	1.28	559.5	483.8
Chev Venture,2001	5087	1974.8	1.24	507.4	501.6
Explorer,2002	5034	2263.3	2.26	598.6	583.2
Trailblazer,2002	5036	2339.0	2.28	568.2	565.6
Toyota Tundra,2002	5073	2422.0	1.72	582.0	597.6

V-to-V test condition requires ΔV for target vehicle to be 35 mph.

Vehicle-toVehicle Injury Data When Impacting Honda Accord

			Driver						Passenger					
Vehicle Name	Test Number	Bullet Test Mass (kg)	Driver HIC36	Driver HIC15	Driver Chest Decel. (3ms min dur, Gs)	Driver Max. Chest Defl (mm)	Left Femur Load (N)	Right Femur Load (N)	Pass. HIC36	Pass. HIC15	Pass. Chest Decel. (3ms min dur, Gs)	Pass. Max. Chest Defl (mm)	Left Femur Load (N)	Right Femur Load (N)
Accord,2004 (Rigid Barrier)	5062	1623.8	461	312	41.0	33.4	319.0	727.0	403	238	42.4	29.6	888.0	293.0
Dodge Caravan,1999	5112	1992.6	900	900	42.1	27.3	942.0	1388.0	358	225	48.3	18.2	443.0	424.0
Chev Venture,2001	5109	1949.6	331	170	36.0	32.8	1231.0	2035.0	387	243	44.8	16.4	2166.0	2291.0
Explorer,2002	5081	2292.1	415	265	40.5	33.4	3787.0	3967.0	121	61	32.3	15.7	3234.0	1904.0
Trailblazer,2002	5113	2371.0	445	273	35.4	27.6	1896.0	2269.0	273	155	35.2	16.3	3483.0	3717.0
Toyota Tundra,2002	5085	2397.8	877	805	46.5	29.9	1249.0	5218.0	369	218	45.5	16.5	3680.0	2882.0

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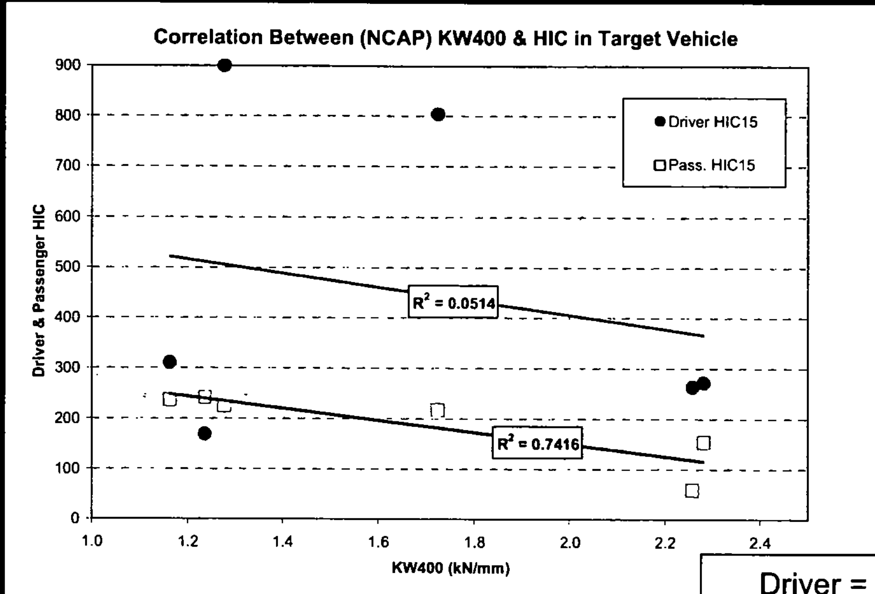
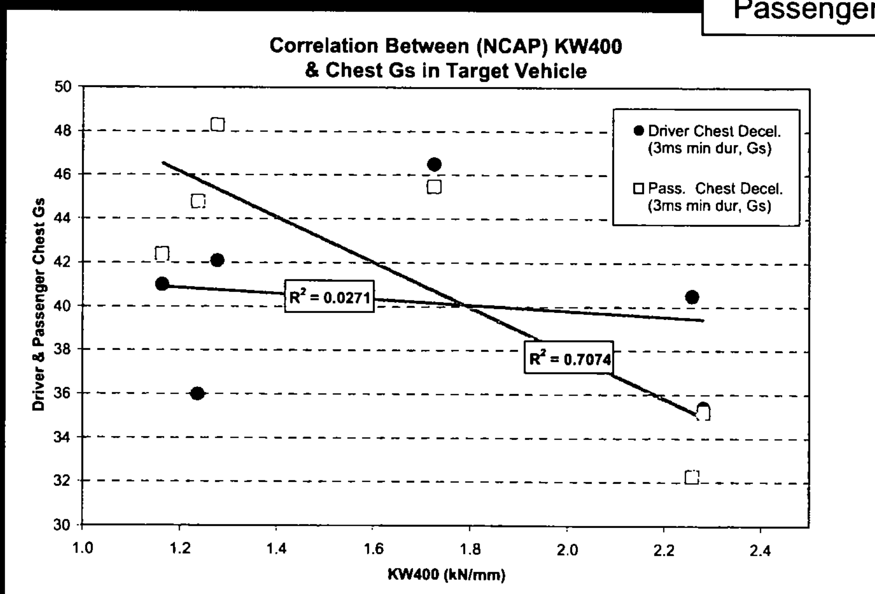
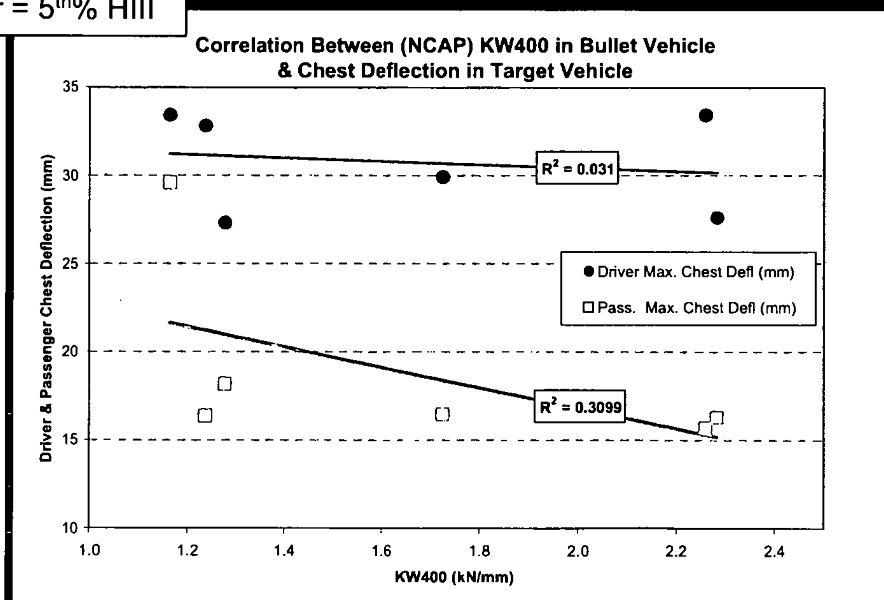
Correlation Between KW400 and Injury Values in V2V Tests



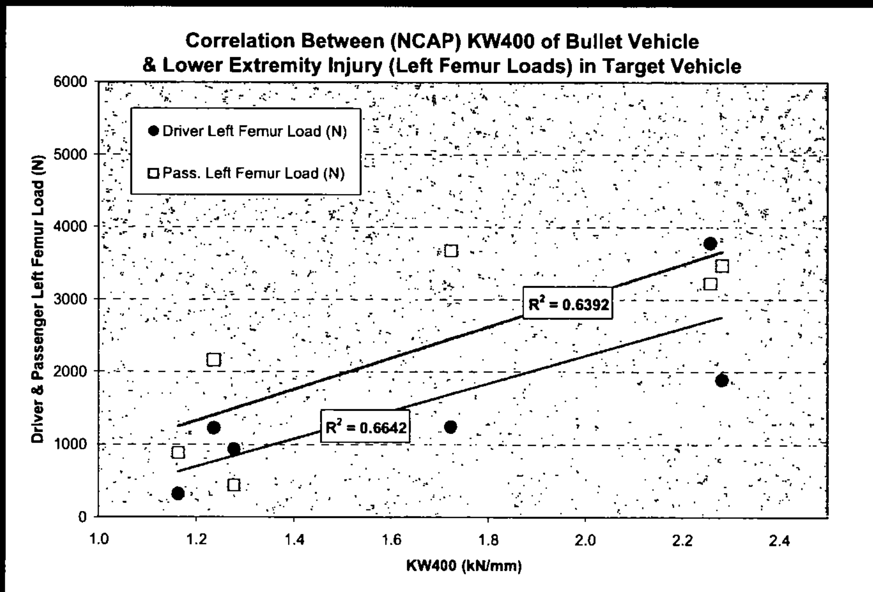
No or little correlation between KW400 and selected injury measures in V-to-V for these (same 6) sample tests.

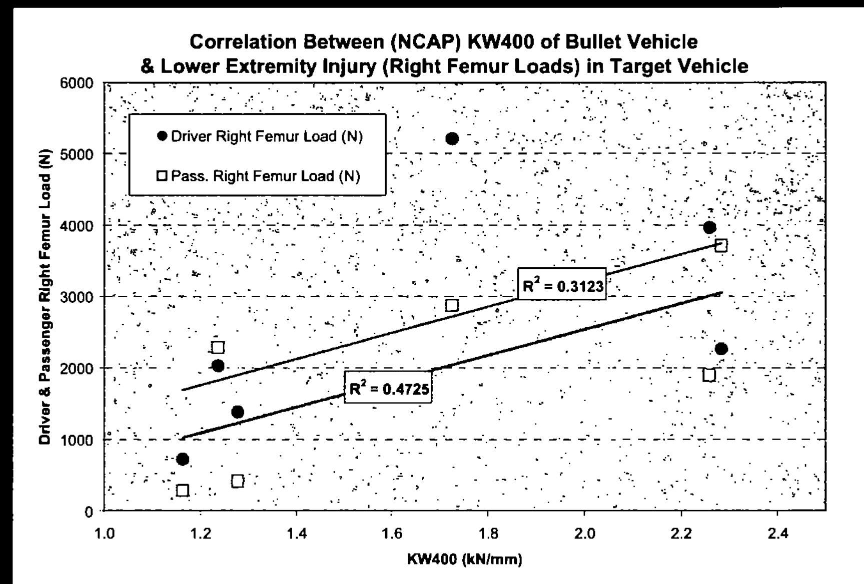
Driver = 50th%HIII
Passenger = 5th% HIII





Correlation Between KW400 and Lower Extremity Injury Values in V2V Tests

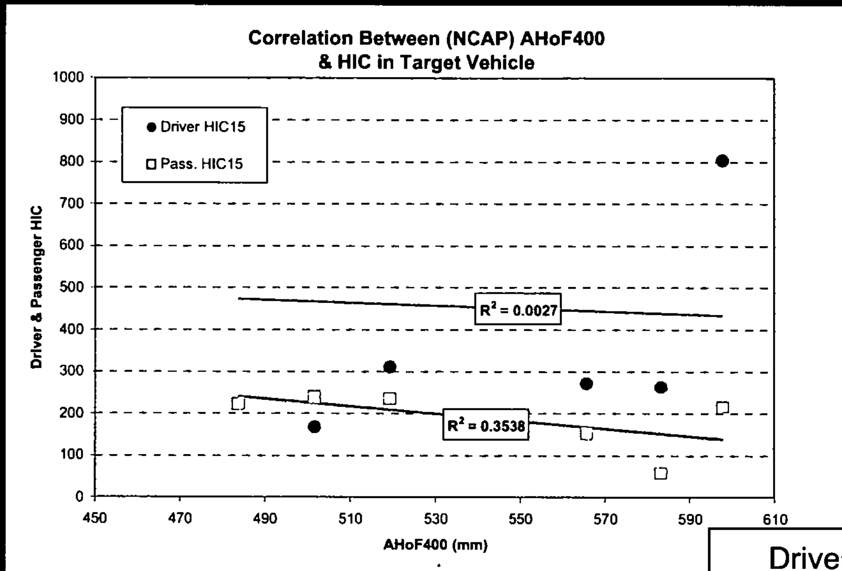




Driver = 50^{th}%HIII
Passenger = 5^{th}% HIII

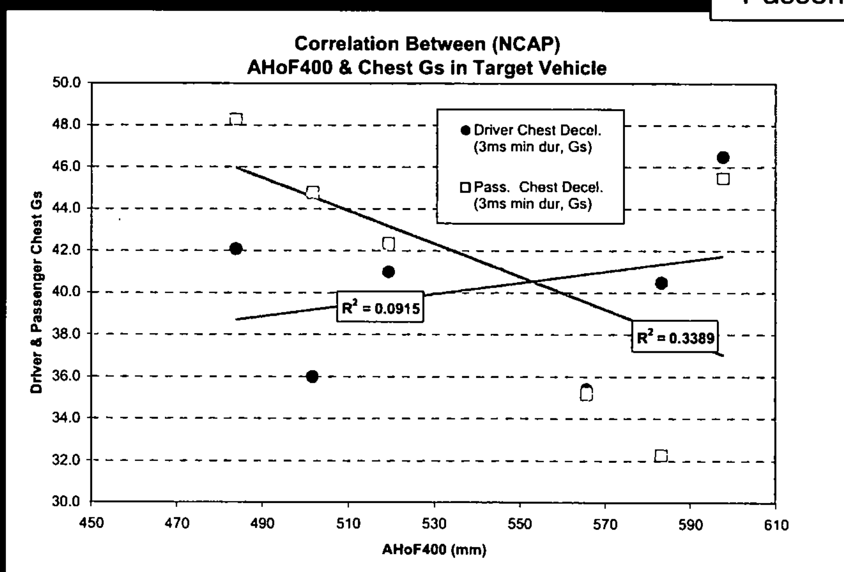
3720 22250

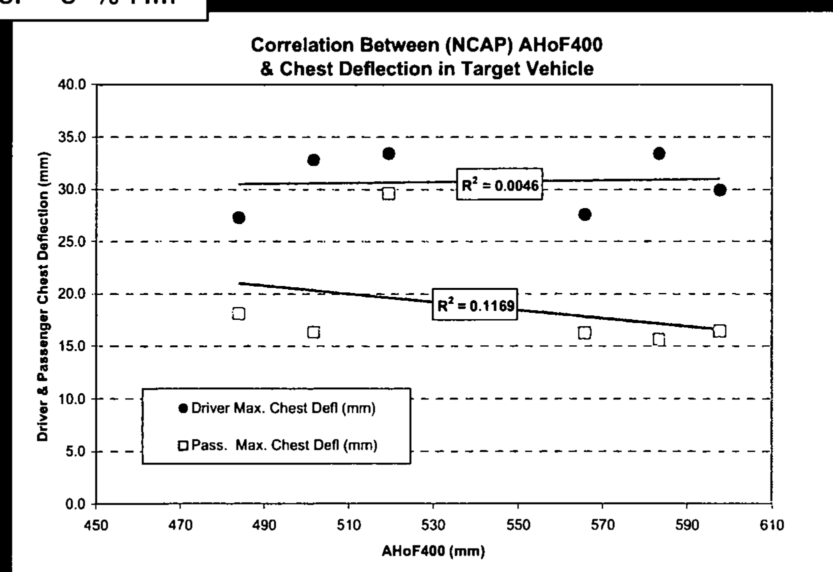
Correlation Between AHOF400 and Injury Values in V2V Tests



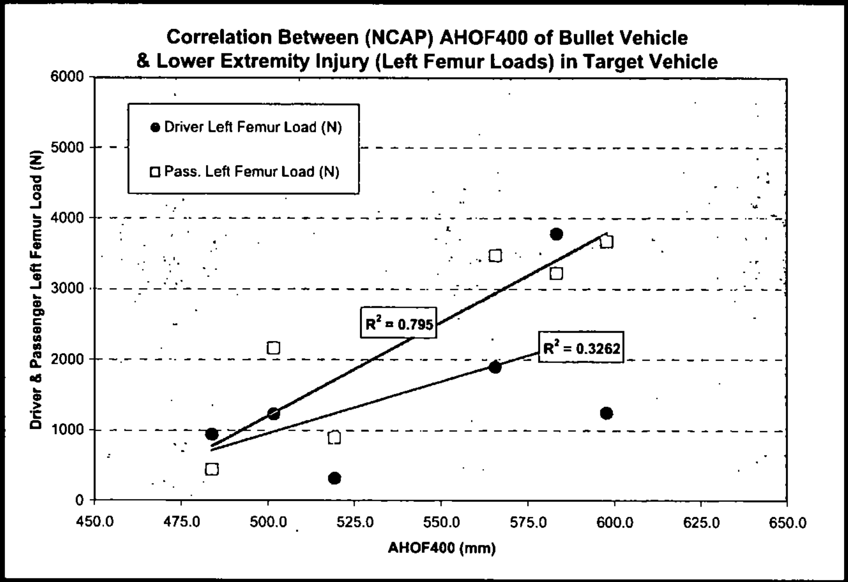
No correlation between AHOF400 and selected injury measures in V-to-V for these (6) sample tests.

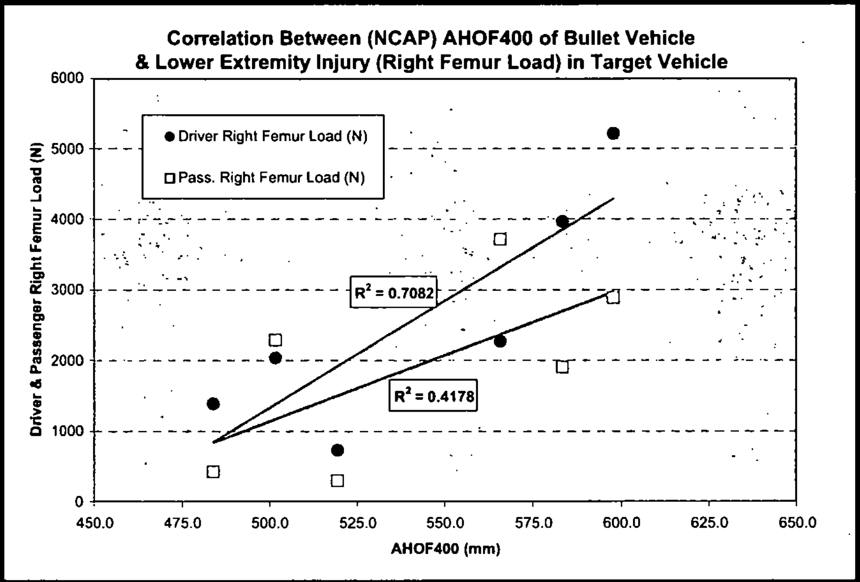
Driver = 50th%HIII
Passenger = 5th% HIII





Correlation Between AHOF400 and Lower Extremity Injury Values in V2V Tests





Driver = 50th%HIII
Passenger = 5th% HIII

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Conclusions

- Further research is needed to develop appropriate test procedures and metrics to evaluate the front structural stiffness of vehicles.
- Prior to rulemaking, appropriate correlation should be obtained between predictive stiffness metric(s) and real-world compatibility performance.
- Development of appropriate stiffness metrics should provide a balance between self-protection and partner-protection in real world crash events, without degrading self-protection.
- Efforts to enhance vehicle compatibility should be coordinated with current and future regulatory and other safety initiatives.

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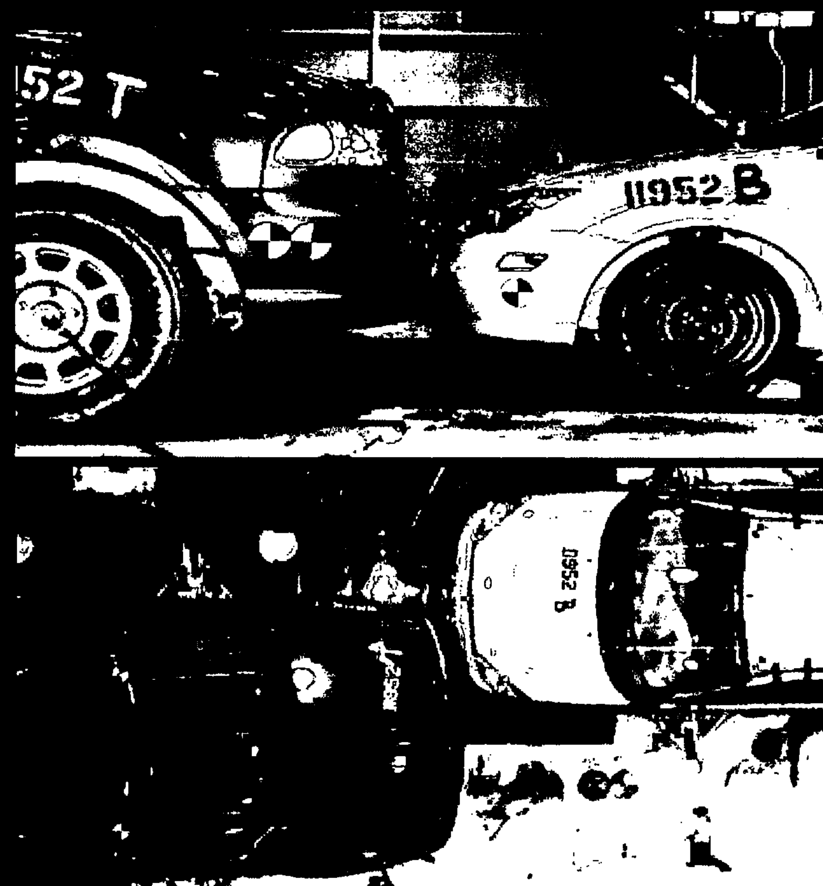
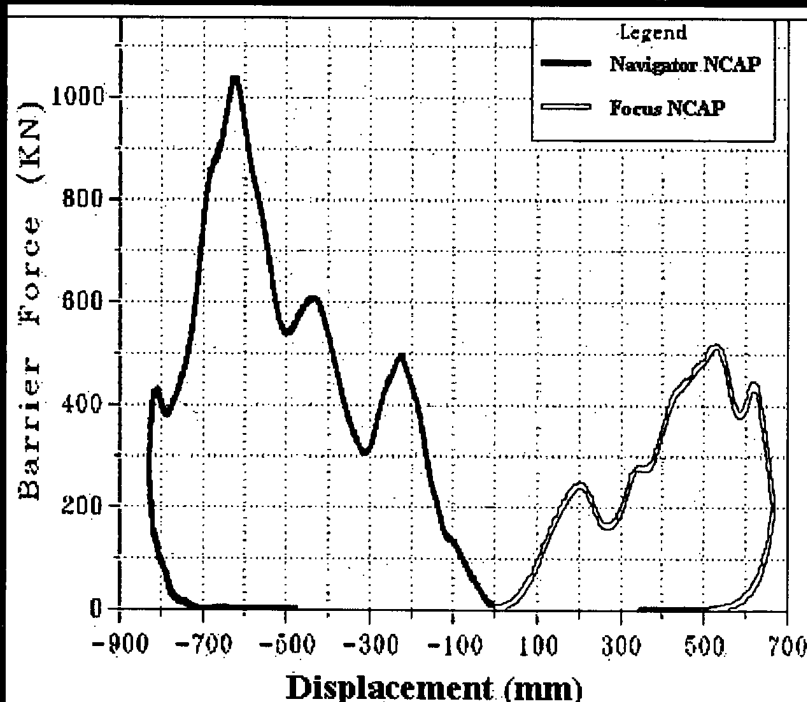
Geometrical Alignment of Navigator's Frame to that of Passenger Car's Rail

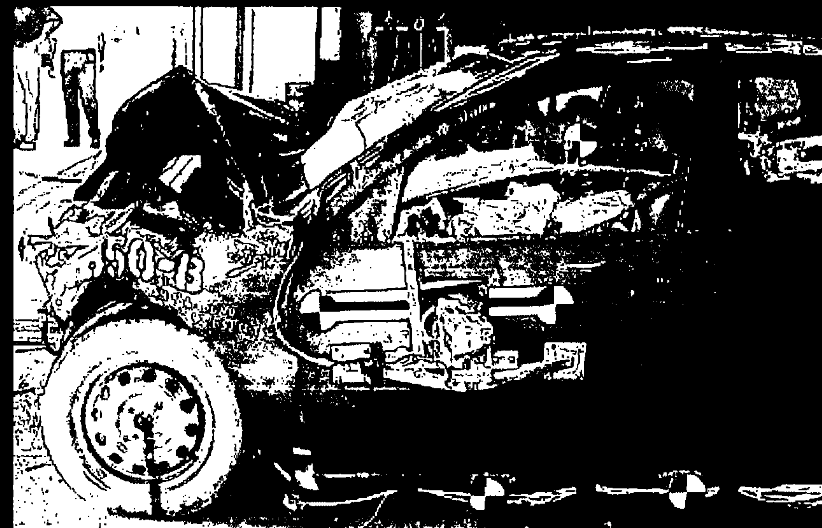
Focus-to-Navigator Full Frontal Impact

Focus-to-Navigator 50% Offset Frontal

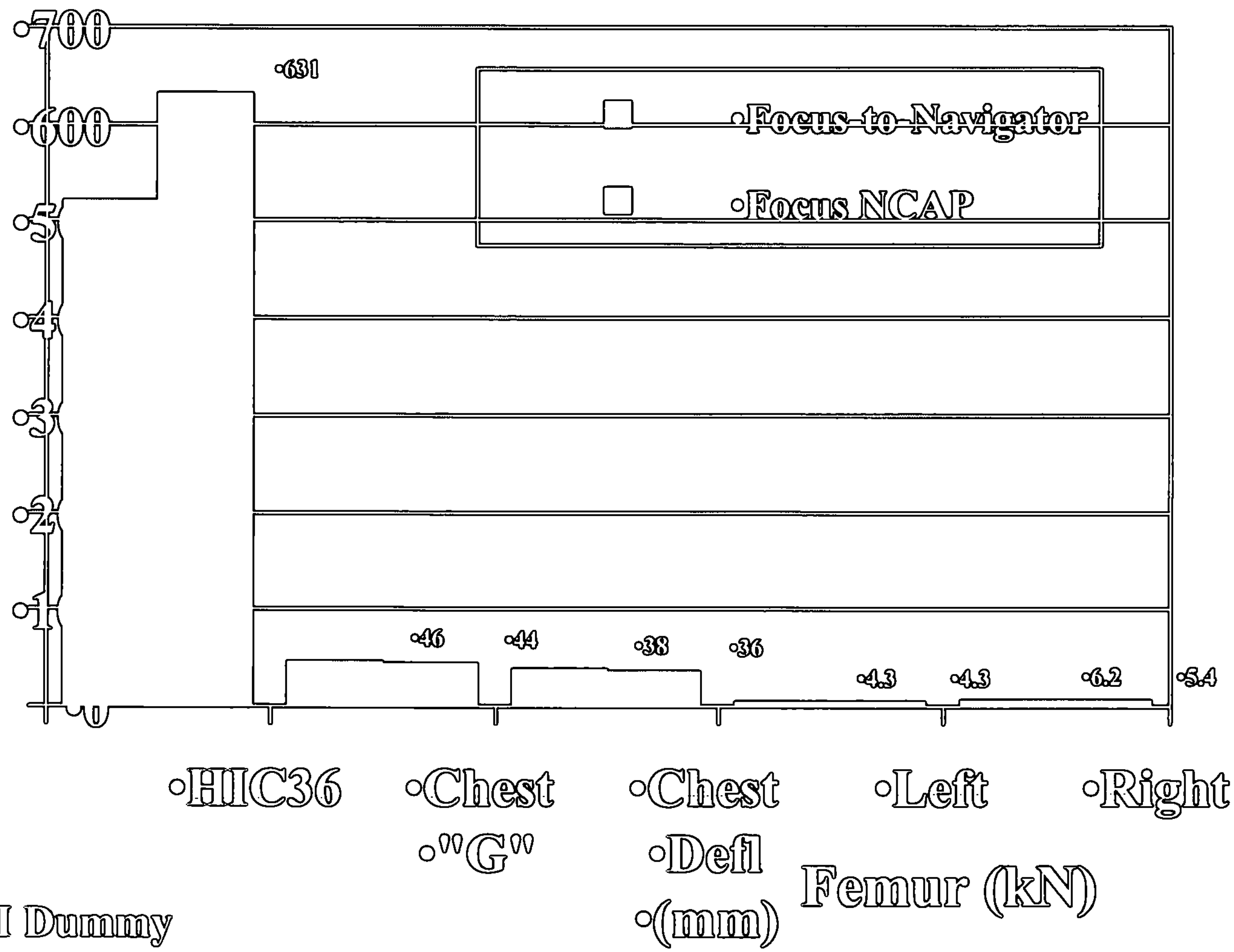


Full Frontal Focus (DV = 35 mph) To Navigator





Full Frontal Compatibility Impact
Focus L/F Occupant* Responses



* 50th% HIII Dummy

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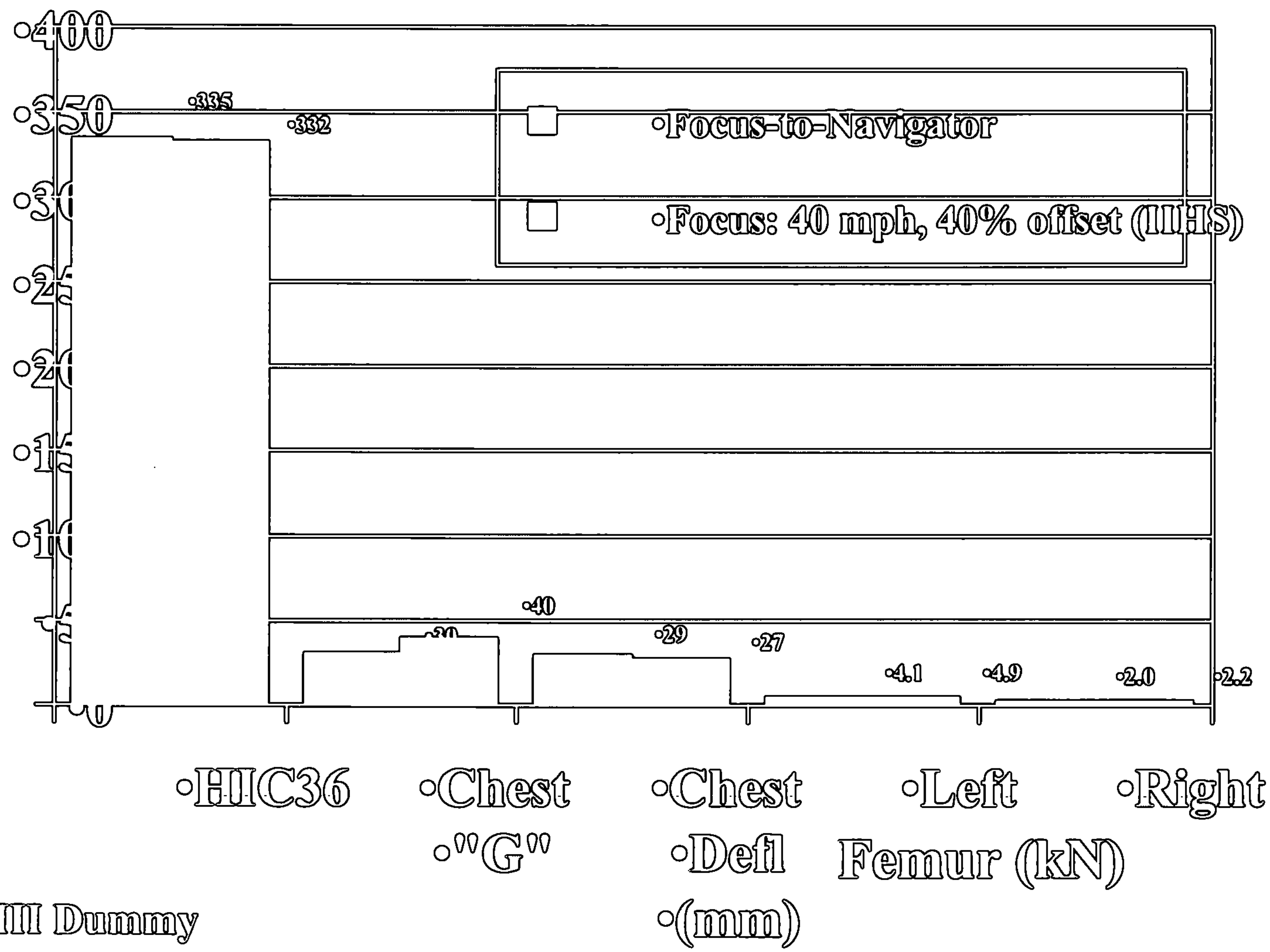
50% Offset Frontal Compatibility Impact
Focus L/F Occupant* Responses



* 50th% HIII Dummy

65

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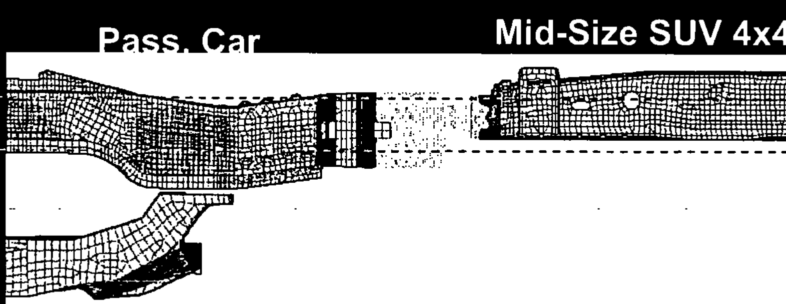
Load Cell Wall Results and Discussions

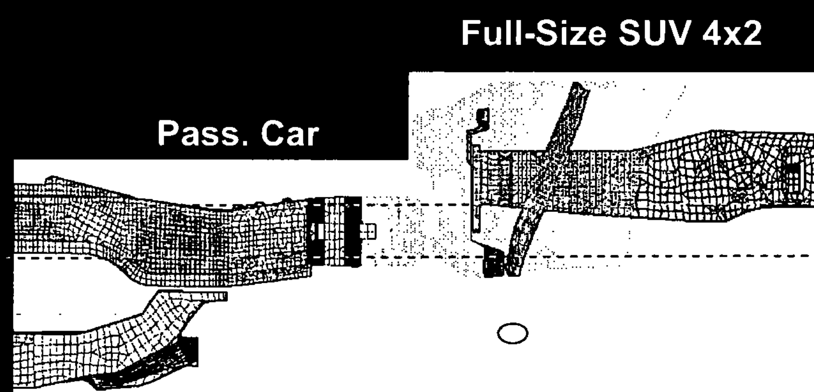
- Two row load-based compatibility metrics VNT (Vertical Negative Deviation) and VSI (Vehicle Structure Interaction) are investigated

- The VNT is to ensure that there is sufficient vehicle structure in alignment with the common interaction area, rows 3 and 4. It sets a target row load of 100 KN minimum and calculates the load below the target row

- The VNT is characterized by the sum of peak force method and the VSI is generally characterized by the same sum of peak values up to 40 ms

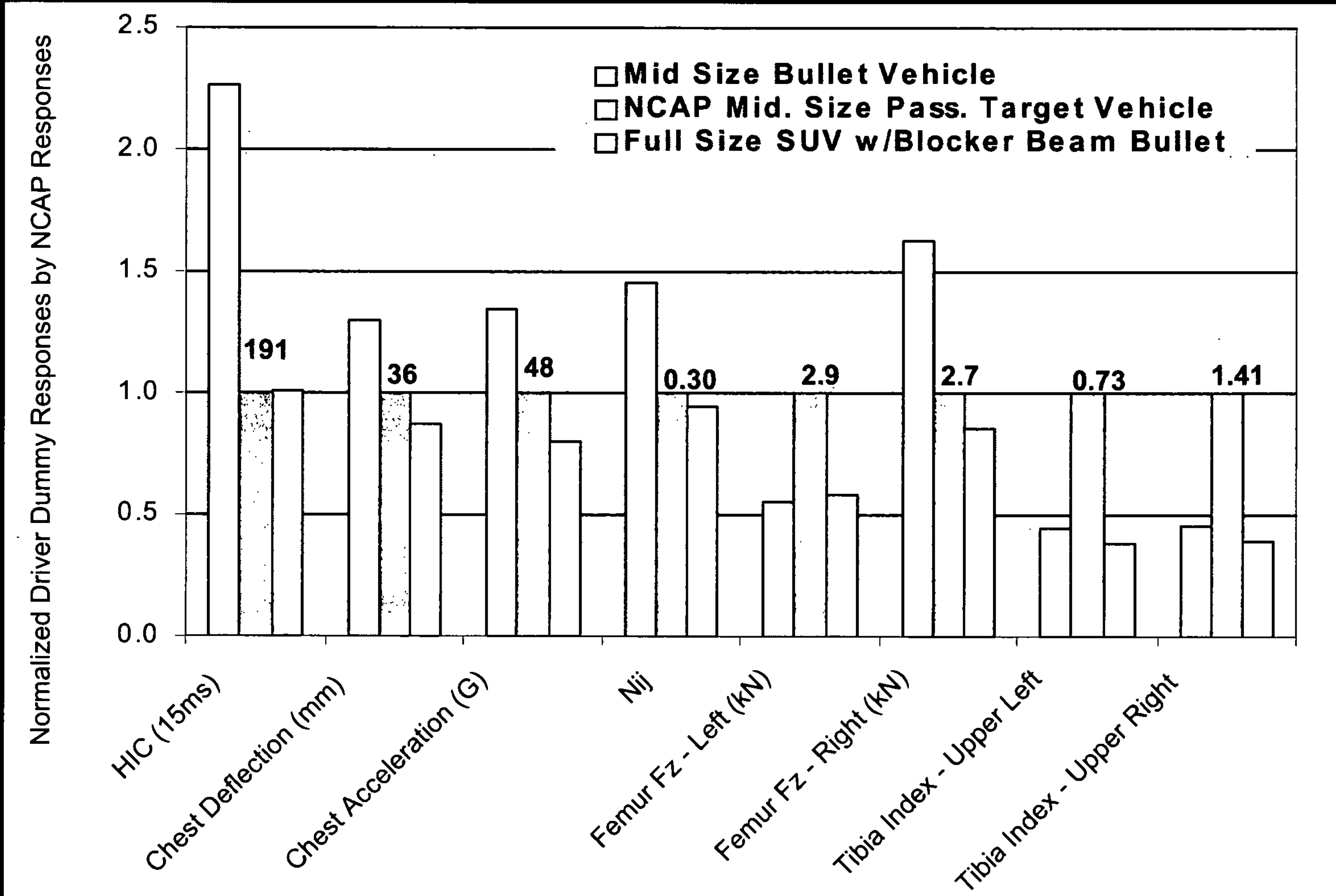
Vehicle-to-Vehicle Crash Test Results





Vehicle-to-Vehicle Crash Test Data
50th % HIII Driver Dummy Response of Target Vehicle

- AHOF Does not Correlate with occupant Responses from V-to-V Impact Tests



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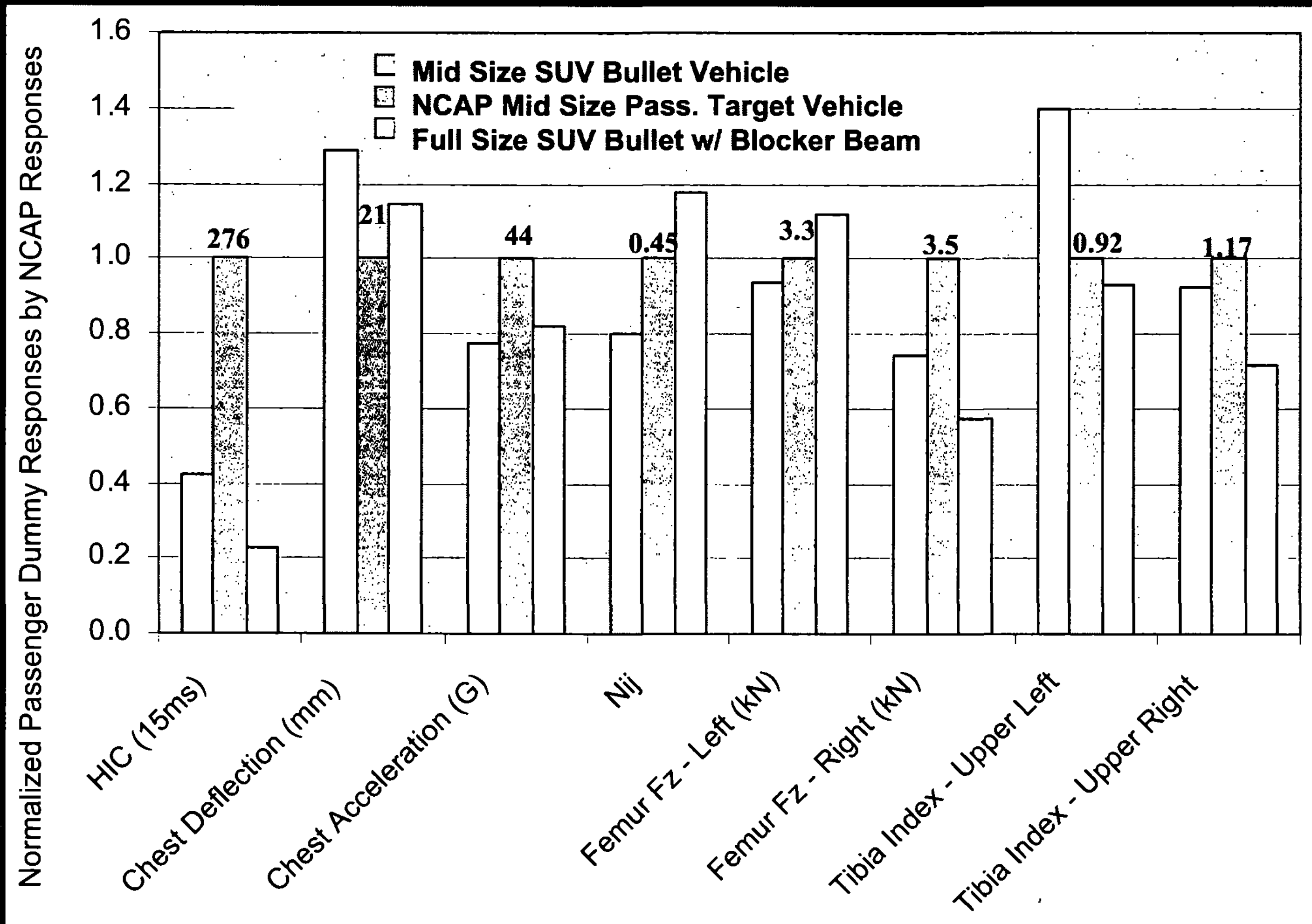
Vehicle-to-Vehicle Crash Test Data
5th% HIII Passenger Dummy Response of Target Vehicle

- AHOF Does not Correlate with occupant Responses from V-to-V Impact Tests



69

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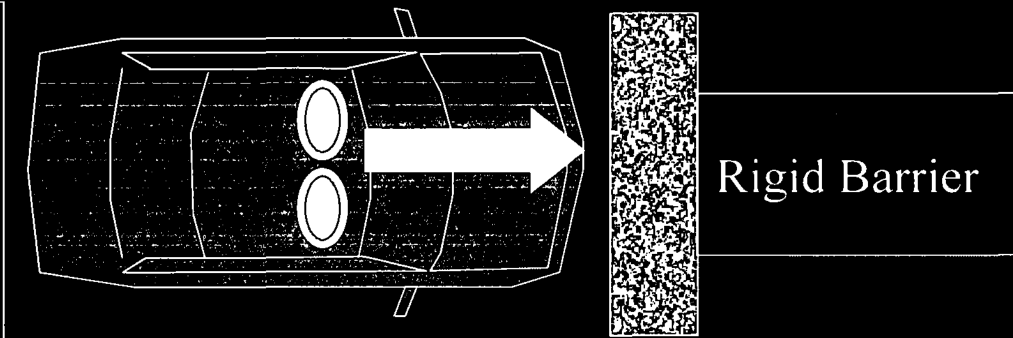
Ford

Current Frontal Impact Test

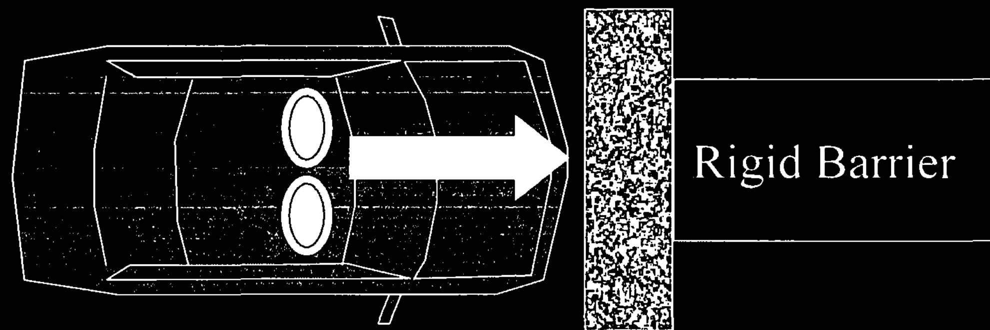
Mode = FMVSS 208
Phase II – 35mph

Self Protection –
Metric ATD Injury
Criteria



Mode = NCAP – 35mph

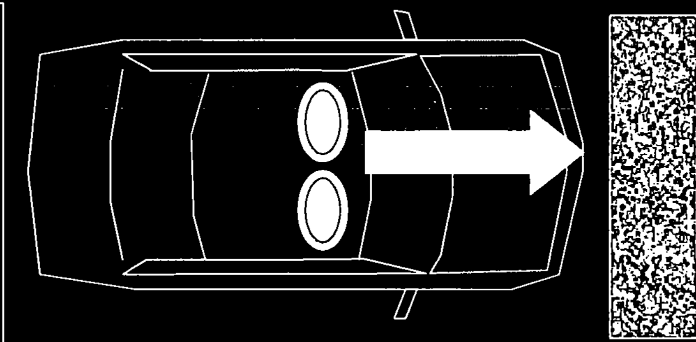
Self Protection –
Metric ATD Injury
Criteria



Proposal

Mode = FMVSS 208
Phase II – 35mph

Self Protection –
Metric ATD Injury
Criteria

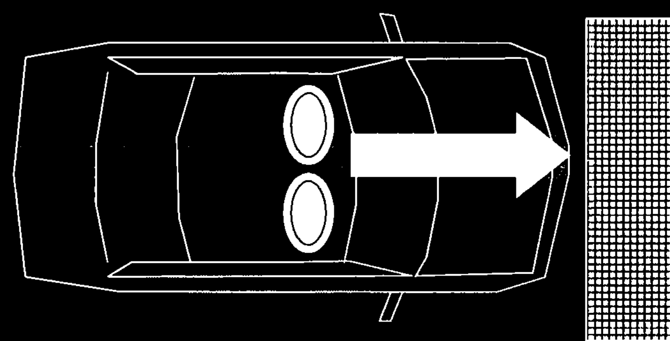


Rigid Barrier

Mode = NCAP – 35mph

Self Protection –
Metric ATD Injury
Criteria

Shared Protection –
Compatibility Metric



Full Deformable
Barrier Face